THE AMERICAN ENGINEER

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All Highways Lead to Joint Convention of . . . .

Illinois Society of Engineers
National Society of Professional Engineers

HOTEL SHERMAN, CHICAGO, ILLINOIS

January 30, 31 February 1, 1941

ALL ENGINEERS ARE INVITED

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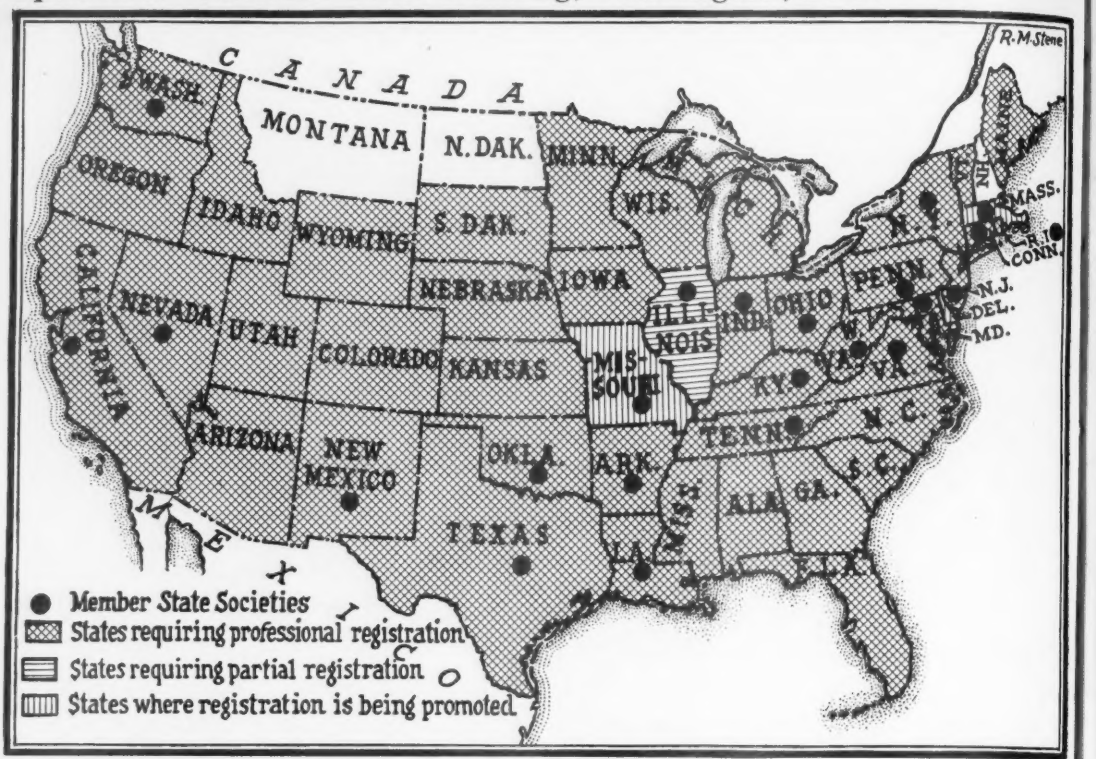

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The Cover

In addition to the announcement of the Joint Convention of I.S.E. and N.S.P.E. the cover page includes a view of the Chicago Express Drive known as Beach Drive along Lincoln Park showing one of the movable fins in the raised position. Through use of these fins the number of traffic lanes is increased or decreased during rush hours to ease the movement. The three continuous parallel lines of fins will stretch for 2.2 miles along a right of way between Lake Michigan and the Lincoln Park Lagoon, will be operated by hydraulic power. The cost of the fins was found to be less than half the cost of seventy feet of additional paving, structures and lighting.

EDITORIALS • • •

To the Illinois Society of Engineers

Frankly gentlemen, we are convening with you, at your invitation, for the purpose of acquainting you with the PROFESSIONAL MOVEMENT IN ENGINEERING. The joint convention offers us a minimum opportunity of telling you the principles we stand for, our accomplishments, and who we are collectively and as individuals.

In the first place, we are THE NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS (NSPE) founded in 1934. Our efforts are devoted to improvement in all the professional aspects of an engineer's life, but excluding the technical. We hold that the major technical societies are fundamental and essential to the very existence of engineering as a science, and we carefully strive to avoid any interference with their functions. We further hold, however, that the purely professional phase of engineering is common to all engineers regardless of their especial fields. First, as to our form of organization which is unique and which is the basis of our strength NSPE is an association of individual State Societies, some 23 of them, each of which is a separate society of its own, has complete autonomy and yet is a part of NSPE represented by a Director on the National Board. Our headquarters are in Washington, D. C., where we keep in close touch with national affairs effecting the profession. We interest ourselves in legislation, rulings of boards and departments, practices and procedures in engineering employment and aid the State Societies in their peculiar or common problems.

We are not a labor union, we do not have insurance features. We issue a society magazine THE AMERICAN ENGINEER, which is devoted to professional matters solely.

A number of the States publish their own bulletins or magazines. We are interested in improving the preliminary training of the future professional engineer, both as to his formal education and his experience. We are one of the number of engineering societies interested in promoting a model law for registration. Some of our State Societies have formally issued "schedules of minimum fees" for the purpose of elevating our level in such state. We have joined with the technical societies in the recent plan for a joint report on recommendations for standard salary and fee schedules in the engineering profession.

But chiefly, we constantly strive to raise the professional standards and promote fair understanding among ourselves and between our profession and the public and with other professions, so, we urge upon you—study us closely—ask questions freely—talk intimately with our members —and particularly look up and introduce yourself to such men as Riedel, Sheridan, Steinman, Roche, Zermuhlen, Holbrook, Larson, Sacks, Beretta, Walker, Simpson, Cleary, Randolph, Morgan, Wagner, Allen, Southerland, your own Gayton and Babbitt and a host of others who attend, all engineers of accomplishment, interested in your profession and in you.

After you meet us, hear us, you will believe in us and our cause, then we know NSPE will grow stronger in the Midwest until such strength eventually matches that of the East.

Members of The Illinois Society of Engineers, The National Society of Professional Engineers is grateful for your invitatoin and HERE WE ARE.

Chicago from the Air

Hotel Sherman—Headquarters

JOINT CONVENTION

Illinois Society of Engineers

National Society of Professional Engineers

CHICAGO, ILLINOIS

THURSDAY, JANUARY 30, 1941

Devoted to Illinois Society of Engineers

9:00 a.m.

Registration.

9:30 a.m. to 10:00 a.m.

Moving picture to be arranged by the Drainage Section.

DRAINAGE SECTION

G. W. Pickels, Chairman, Presiding

10:00 a.m. to 12:00 noon

"The Unit Hydrograph and Its Application," LeRoy K. Sherman, Consulting Engineer, Chicago, Illinois.

"Research on Hydrology and Hydraulics With Special Reference to Soil and Water Conservation," C. E. Ramser, Chief, Hydrologic Division, Soil Conservation Service, Washington, D. C.

"The Public Welfare Aspects of Topographic Mapping," M. M. Leighton, Chief, Illinois Geological Survey, Urbana, Illinois.

ROADS AND PAVEMENTS SECTION

R. M. Ferguson, Chairman, Presiding

12:00 noon to 2:30 p.m.

Luncheon and following program:

Address on Highway Administration by an officer of the Highway Department.

"Military Roads" by an engineer of the Public Roads Administration.

SURVEYING SECTION

Adolph Vik, Chairman, Presiding

2:30 p.m. to 5:30 p.m.

"What A Chicago Land Expert on Boundary Lines Should Know," W. D. Jones, Illinois Land Surveyor and Member of I. S. E.

"Planning for Chicago of the Future," Hugh E. Young, Chief Engineer of Chicago Planning Commission, Illustrated.

"Suggestions of the Legislative Improvements of the Surveyors Registration Law, and the Surveying Standards in General," Harry L. Canmann, Chairman of Surveyors Examining Committee of Dept. of Registration and Education, State of Illinois.

6:00 to 8:00 p.m.

Buffet supper and smoker.

8:00 until adjournment

56th Annual Business Session.

FRIDAY, JANUARY 31, 1941

Devoted to Registration N.S.P.E.

8:30 to 9:00 a.m.

Motion picture of the construction of the new Chicago South Side Water Filtration Project, by Loran D. Gayton, City Engineer, Chicago, President Illinois Society of Engineers.

9:00 a.m.

Meeting of Secretaries of Member State Societies of the National Society of Professional Engineers.

WATER SUPPLY SECTION—I. S. E.

K. V. Hill, Chairman, Presiding

9:00 a.m. to 10:30 a.m.

"The Welfare of the Engineer," W. W. DeBerard, Assistant Editor, Engineering News Record.

"Water Supply at Army Cantonments," S. M. Clarke, partner, Greeley and Hansen.

SEWERAGE SECTION—I. S. E.

J. R. Longley, Chairman, Presiding

10:30 a.m. to 12:00 noon

"Details of Design Affecting Treatment Plant Operation," C. E. Schwob, Assistant Sanitary Engineer, State Department of Health, Springfield, Illinois.

"Engineering Insurance," F. L. Osborn, member of I. S. E., Ottawa, Illinois.

N.S.P.E., PUBLIC AFFAIRS SECTION, AND PROFESSIONAL ACTIVITIES SECTION

12:00 noon to 6:00 p.m.

Luncheon and following program:

"The Engineer's Preparedness," Professor C. Hale Sutherland, Head of the Department of Civil Engineering, Lehigh University, Bethlehem, Pa.

"The Engineer's Professional Relations and Responsibility to Society," Fred K. Hoehler, Executive Director, The American Public Welfare Association.

"The Engineer in Public Affairs and National Defense," by a nationally prominent speaker.

6:30 p.m.

Annual Banquet for both Societies. N. S. P. E. and I. S. E.

SATURDAY, FEBRUARY 1, 1941

8:30 a.m. to 9:00 a.m.

Moving picture "Streamlining Chicago".

STRUCTURAL SECTION—I. S. E.

R. L. Whannel, Chairman, Presiding

9:00 to 11:00 a.m.

"New Long-span Roof Designs and their Application to the National Defense Program," Anton Tedesko, Structural Engineer, Roberts & Schaefer Co., Chicago.

ELECTRICAL, MECHANICAL & MINING SECTION—I. S. E.

John C. Gibson, Chairman, Presiding

11:00 a.m. to 1:00 p.m.

Program to be announced.

1:00 p.m. until adjournment

Luncheon and Business Session N.S.P.E.

THE RITUAL OF THE CALLING OF AN ENGINEER

Obligation

I,_____

in the presence of these my betters and my equals in my Calling, bind myself upon my Honour and Cold Iron, that, to the best of my knowledge and power, I will not henceforward suffer or pass, or be privy to the passing of, Bad Workmanship or Faulty Material in aught that concerns my works before men as an Engineer, or in my dealings with my own Soul before my Maker.

MY TIME I will not refuse; MY THOUGHT I will not grudge; MY CARE I will not deny towards the honour, use, stability and perfection of any works to which I may be called to set my hand.

MY FAIR WAGES for that work I will openly take. MY REPUTATION in my Calling I will honourably guard; but I will in no way go about to compass or wrest judgment or gratification from any one with whom I may deal. And further, I will early and warily strive my uttermost against professional jealousy or the belittling of my working-brothers, in any field of their labour.

For my assured failures and derelictions, I ask pardon beforehand of my betters and my equals in my Calling here assembled; praying that in the hour of my temptations, weakness and weariness, the memory of this my Obligation and of the company before whom it was entered into, may return to me to aid, comfort and restrain.

Camp . . To all these things you have subscribed upon Honour and Cold Iron.

Candidate And upon Honour and Cold Iron, God helping me, by these things I purpose to abide.

*Camp No.*_____

*Dated*_____ _____

Obligated Engineer

*Camp Secretary*_____ *No.*_____

Ed. Note: In the recent suggestion that Engineers might take an "oath of office" into the Profession the above "Ritual of the Calling of an Engineer" purported to have been written by Rudyard Kipling and used by one of the Canadian Societies of Professional Engineers deserves our attention. Imbibe its import and its use of English.

Do the Registration Acts Prevent Engineering From Becoming a Profession?

By **EDWIN M. WOODS**

Member, District of Columbia Society of Professional Engineers

IN the past two years there has been enacted, in most of the States, legislation regulating the practice of engineering. Practically all of these acts have used the words "Professional Engineer", and numerous articles have been written by engineers setting forth the duty of the "Profession" to conduct itself as such. The great service rendered to the public and to the engineers by these gentlemen and by the societies instrumental in securing passage of the registration acts, can not be overestimated. But few engineers seem to realize that a serious mistake has already been made in the wording of the acts, which must be corrected before engineering is entitled to be treated as a profession.

Under the American system of law, the word "profession" has a very definite and technical meaning, as applied by the courts. Roughly, it applies to one who works principally with his brain as opposed to "trade" which applies to one working principally with his hands.[1] In the words of one Court, "The word 'profession' may be applied to any calling or vocation requiring special knowledge of a branch of science or learning, but in legal application has meaning peculiarly applicable to the so-called 'learned professions' which include theology, law, and medicine."[2] The United States Supreme Court, in specifically placing a chemist within the learned professions, say that there were originally three professions, namely law, medicine, and theology, but that other lines of endeavor have climbed and are climbing to the same plane, and should be so classified.[3] There is little doubt that engineers have climbed to that plane, but that is not enough. As the Supreme Court of Louisiana has pointed out, a mere act of the legislature in styling a calling as a "profession" is not enough to make it such.[4] Naturally the question occurs: What difference does it make whether the courts treat engineering as a profession or not? Just this—a right which is not legally enforcible is of little value. For example, a debt outlawed by the Statute of Limitations is still a moral debt, but as the courts will not lend their aid, the creditor is powerless to collect it. So, as the courts have the exclusive power to interpret the meaning of the statutes, the value of their opinion is apparent.

It is a fundamental rule of law that although corporations are free to engage in any lawful business or to follow a trade, they may not practice a learned profession.[5] Thus it has been decided specifically that a corporation has no power to practice law,[6] medicine,[7] dentistry,[8] and optimetry,[9] or in general to hire practitioners to carry on such a business for it.[10] At least one Court has actually gone so far as to dissolve a corporation for practicing a profession.[11] But there have been no decisions holding that a corporation may not practice engineering, although the Pennsylvania Supreme Court has held that a corporation may not practice engineering unless the plans et cetera are signed by a registered professional engineer.[12] It is well to note, at this point, that the same Court and others have held that a corporation can not possibly qualify for a license to practice engineering, having neither character nor ability to take the rigid examination required by statute.[13]

Now, why do the courts prohibit a corporation from practicing a profession? The principal reason is that a professional man stands in a fiduciary or trust relationship toward his client, while a corporation owes a fiduciary duty to its stockholders only. The opinion of the New York Court of Appeals, in refusing to allow a corporation to practice law, furnishes a perfect illustration, and has been widely quoted with approval by the appellate courts of other States:—

"The practice of law is not a business open to all, but a personal right limited to a few persons of good moral character, with special qualifications ascertained and certified after a long course of study, both general and professional, and a thorough examination by a state board appointed for that purpose. The right to practice law is in the nature of a franchise from the state, conferred only for merit. It cannot be assigned or inherited, but must be earned by hard study and good conduct. It is attested by a certificate of the supreme court, and is protected by registration. No one can practice law unless he has taken an oath of office and has become an officer of the court, subject to its discipline, liable to punishment for contempt in violating his duties as such, and to suspension or removal. It is not a lawful business except for members of the bar who have complied with all of the conditions required by statute and the rules of the courts. As these conditions cannot be performed by a corporation, it follows that the practice of law is not a lawful business for a corporation to engage in. As it cannot practice law directly, it cannot indirectly by employing competent lawyers to practice for it, as that would be an evasion which the law will not tolerate. "Quando aliquid prohibitur ex directo, prohibitur et per obliquium." Co. Lit. 223.

"The relation of attorney and client is that of master and servant in a limited and dignified sense, and it involves the highest trust and confidence. It cannot be delegated without consent, and it cannot exist between an attorney employed by a corporation to practice law for it, and a client of the corporation, for he would be subject to the direction of the corporation, and not to the direction of

[1] State v. Cohn, 184 La. 53, 165 So. 449.
Ballantine's Law Dictionary.
50 C. J. 637.
[2] Georgia State Board of Examiners in Optometry v. Friedman's Jewelers, 183 Ga. 669, 189 S. E. 238.
[3] U. S. v. Laws 163 U. S., 258, 16 S. Ct. 998, 41 L. Ed. 151.
[4] State v. Cohn, Supra.
[5] Dr. Allison, Dentist, Inc. v. Allison, 360 Ill. 638, 196 N. E. 799.
19 C. J. S. 400—par. 956 et seq.
[6] People ex rel Illinois State Bar Assn. v. People's Stock Yards State Bank, 344 Ill. 462, 176 N. E. 901.
Re Maclub of America, 295 Mass. 45, 3 N. E. (2d) 272, 105 A. L. R. 1360.
Re Miller, 5 Cal. (2d) 588, 55 Pac. (2d) 491.
[7] People ex rel State Board of Medical Examiners v. Pacific Health Corp., 12 Cal. (2d) 156, 82 P(2d) 429, 119 A. L. R. 1284.
[8] Hannon v. Siegel-Cooper Co., 167 N. Y. 244, 60 N. E. 597, 52 L. R. A. 429.
[9] McMurdo v. Getter, 298 Mass. 363, 10 N. E. (2d) 139.
[10] Unger v. Landlord's Management Corp., 114 N. J. Eq. 68, 168 A. 229.
[11] State ex rel Price, Attorney General v. Ohio Automobilists' Protective Ass'n Co., 103 Ohio St. 677, 136 N. E. 59.
[12] Ballinger v. Widman Brewing Corp., —— Pa. ——, 14 A. (2d) 81.
[13] Com. ex rel Humphrey, 288 Pa. 280, 136 A. 213.
American Store Equipment & Construction Corp. v. Jack Dempsey's Punch Bowl, Inc., 21 N. Y. S. (2d) 117.

the client. ..... The corporation would control the litigation, the money earned would belong to the corporation, and the attorney would be responsible to the corporation only. His master would not be the client but the corporation, conducted, it may be, wholly by laymen, organized simply to make money and not to aid in the administration of justice which is the highest function of an attorney and counsellor at law. The corporation might not have a lawyer among its stockholders, directors, or officers. Its members might be without character, learning, or standing. There would be no remedy by attachment or disbarment to protect the public from imposition or fraud, no stimulus to good conduct from the traditions of an ancient and honorable profession, and no guide except the sordid purpose to earn money for its stockholders. The bar, which is an institution of the highest usefulness and standing, would be degraded if even its humblest member became subject to the orders of a money-making corporation engaged not in conducting litigation for itself, but in the business of conducting litigation for others. The degradation of the bar is an injury to the state.

"A corporation can neither practice law nor hire lawyers to carry on the business of practicing law for it any more than it can practice medicine or dentistry by hiring doctors or dentists to act for it. People v. Woodbury Dermatological Institute, 192 N. Y. 454; 85 N. E. 697; Hannon v Siegel-Cooper Co., 167 N. Y. 244, 246, 60 N. E. 597, 52 L. R. A. 429. The legislature in authorizing the formation of corporations to carry on 'any lawful business' did not intend to include the work of the learned professions ..... which for time out of mind have been given exclusive rights and subjected to peculiar responsibilities."[14]

But why, if corporations can not practice a profession, are they allowed to practice engineering? Because practically all of the engineering registration acts contain an express provision allowing them to do so. The proposed District of Columbia act is typical:—

"Section 17. A partnership or a corporation may engage in the practice of professional engineering: *Provided*, That the work in such practice be carried on by licensed professional engineers, properly authorized in their respective branches of the profession."[15] Such provisions are not found in the various acts regulating the practice of law, medicine, and dentistry, or in the model law for the registration of engineers.[16] Although the courts have intimated that they think that engineering should be classified as a profession, they can only apply the law as they get it. The Pennsylvania Supreme Court, in deciding that the State has the right, under the police power, to regulate the practice of engineering, say:

"Of course, under what circumstances the safety and welfare of the community require the protection afforded by a professional registration act is primarily for the legislature to decide, and, when that body concludes that engineers, who have to do with the construction of our great bridges, reservoirs, and buildings, together with other structures which touch the daily life of all the people, must have their qualifications certified by the state, we can hardly say that such an act is, prima facie, an abuse of the police power, for a mistake made by an engineer in figuring the strain and stress capacity of the various members that enter into many latter day constructions might lead to such a loss of life as would amount to a public calamity, or, in the field of electrical engineering, the wrong location of wires and machinery might result in untold injuries, and again, the unskilled performance of the duties of a mining engineer might not only lead to the loss of human life, but also to much strife between adjoining owners and to litigation in the courts."[17]

And the Supreme Court of Maryland say (before passage of the Maryland registration act for engineers),

"While literally the word 'profession' may be applied to any calling requiring special knowledge of some branch of science or learning, historically and ordinarily it is limited to such avocations as the law, the ministry, medicine, military science, engineering, and the like."[18]

Corporations should be allowed to practice engineering on their own land and with their own property, although the States have the right to say that such work be done by registered engineers only, even though interstate commerce be affected, if the safety and welfare of the public is involved.[19] But to allow a corporation to practice engineering indiscriminately, by merely having the plans signed by a registered engineer, is detrimental to the interests of the client, the public, and the engineer. And as long as such practice continues, the engineer will remain in his present niche, somewhere between a trade and a profession, having all of the liabilities of both but few of the assets of either. Obviously the situation should be remedied. As to just how this must be done, there seems to be only one solution. The existing registration acts must be amended. The States have the power to prohibit the practice of a profession by a corporation,[20] and statutes which, in so many words, deny to corporations the right to engage in such practice are valid[21] since they merely confirm the already existing common law.[22] So, if the legislatures can be persuaded to strike out the clauses conferring upon corporations the right to practice engineering, the problem will be solved. Without these clauses, the corporations have no power to practice any profession, as it is impossible for them to satisfy the license requirements.[23] If they then continue to practice engineering, they will be unable to collect for their services, as it is well settled that a contract to render professional services by one not licensed to practice that profession, is void ab initio and will not be enforced by the courts.[24] And if such contract is for engineering services and materials, the courts will not attempt to separate the good from the bad, but will refuse to allow a recovery of any part of the contract.[25]

[14] Re Co-operative Law Co., 198 N. Y. 479, 32 L. R. A. (N.S.) 55, 139 Am. St. Rep. 839, 92 N. E. 15, 19 Ann. Cas. 879.
[15] Senate Document 1128, 76th Congress of the United States.
[16] A Model Law for the Registration of Professional Engineers and Land Surveyors. (Sponsored by seventeen of the leading American engineering societies).

[17] Commonwealth v. Humphrey, Supra.
[18] Dvorine v. Castelberg Jewelry Corp., 170 Md. 661, 185 A. 562.
[19] Pennsylvania R. Co. v. Hughes, 191 U. S. 488.
[20] Winberry v. Hallihan, 361 Ill. 121, 197 N. E. 552.
[21] Winberry v. Hallihan, supra.
[22] Pacific Employers Ins. Co. v. Carpenter, 10 Cal. App. (2d) 592, 52 P(2d) 992.
[23] Re Co-operative Law Co., supra.
[24] Ballinger v. Widman Brewing Corp., supra.
[25] Ballinger v. Widman Brewing Corp., supra.
American Store, etc. Corp. v. Jack Dempsey's Punch Bowl, supra.

Colonel F. E. Lamphere, recently Chief of Reconstruction Finance Corporation's Engineering Staff assigned to the Pennsylvania Turnpike, has been appointed Chief of Construction Division, Engineering Branch, Quartermaster Corps of the Army.

When the War Department needed a responsible Engineer to speed the National Defense Program they called Colonel Lamphere, who in his new work has charge of all engineering incident to the construction of cantonments, roads, airports, munition plants, etc., for the Army.

An Engineer's View of Engineering Education

Presented at the 48th Annual Meeting, Society for the Promotion of Engineering Education, University of California, in June

By D. B. STEINMAN

Past President, National Society of Professional Engineers

(Continued From the October-November Issue of The American Engineer)

Our students need to study history, government, contemporary civilization, philosophy, logic, aesthetics, industrial relations, human relations, psychology, professional ethics, and other subjects not ordinarily included in the engineering curriculum. Such studies are indicated not because they are educationally more valuable than the strictly technical, but because *they are needed to complement the technical in the educational preparation of a professional man.*

Engineering educators now admit and recognize the validity of this educational philosophy. The S. P. E. E. Committee on "Aims and Scope of Engineering Curricula" now declares in its conclusions:

> *"Undergraduate curricula should be made broader and more fundamental through increased emphasis on basic sciences and humanistic and social studies."*

I take my hat off to the Committee for its courage and vision in reaching and recording this conclusion. Whether the engineering schools, to an appreciable extent, will do anything to effectuate this recommendation, is another question.

A Logical Sequence

It should be accepted as axiomatic that the members of a profession should be truly educated men.

If the engineering profession is to be a profession in the highest sense of the word—a profession of planners and leaders and not of mere technicians—we need education, and not merely technical training.

I believe that *education,* in its foundation essentials, should precede training; and that *general education and training* should precede *specialization.*

My picture of professional preparation is that of the pyramid—for breadth, soundness, and enduring stability—*First, as a broad base, the education that all educated men should have; then the basic courses that all engineers should have; and finally, the more specialized and intensive training for the major branch of engineering selected.*

The logic is that of progressive preparation and specialization, with advancing intellectual maturity for decisions affecting choice of life-work and for the more intensive preparation therefor.

All of this cannot be done in a course of study limited to four years after high school. The engineering educators virtually admit that their four-year curriculum does not complete the necessary schooling for the professional man, and they prescribe or suggest post-graduate courses to cover the deficiency.

For a complete program of professional preparation, based on the developing logic of the situation, I would recommend the following sequence:

1. *Two years of pre-engineering college study,* at the level of the present first two years of the engineering school, to include college physics, mathematics through calculus, and other basic requirements that may be indicated; this to be taken either in the engineering school or in the scientific or pre-engineering course of a general college, preferably in the latter.

2. *Two years of general engineering* in the engineering school, at the present third and fourth year level, with more emphasis on basic engineering and less attempt toward specialization; with the degree B.E. conferred at this stage.

3. *Two years of study in a major branch of engineering,* in an extended and coördinated program in the engineering school; with the degree of the type B.C.E. conferred at this stage.

This program, I submit, meets all of the problems of engineering education. It makes preparation for the profession the governing, though not the sole, objective. It provides three terminal points, at each of which the student retains full flexibility for further decisions, with advancing maturity for each more critical decision. It provides two degrees to be conferred by the engineering school: one upon completion of the program in general engineering, for the man who wants to stop at that point; and another upon completion of the full curriculum for the man who has selected the major branch of engineering in which he plans to practice. It enables the engineering schools, if they have the vision to do so, to turn the first two pre-engineering years over to the colleges of liberal arts and sciences, and to concentrate upon their true function—*the teaching of engineering* through the general and professional levels. It enables the engineering schools to plan and develop a coordinated and adequate *engineering* curriculum of four years above the pre-engineering level.

General Engineering

For years I have been advocating that the first degree in engineering be simply B.E. (Bachelor of Engineering), on the ground that there cannot be, or should not be, enough specialization in the first four years after high school to justify specialized degrees. In 1932, the same recommendation was independently made by President Butler of Columbia University. In 1936, Yale adopted this principle, and President Harvey N. Davis of Stevens recorded his conviction that the trend in engineering education will be increasingly toward a single curriculum in general engineering. There are already six curricula in general engineering on the accredited list, with several others, including the new "Basic Engineering" course at Princeton, awaiting official approval.

In a recent address, President Davis said: "Specialization in undergraduate engineering education has its disadvantages and dangers. In the rapidly changing world in which we live, adaptability is increasingly more important to the young college graduate than is an academic proficiency in any one limited field of engineering. . . . Is it not wiser for a prospective engineer to devote his first four years to studying unhyphenated engineering, just as prospective doctors study medicine, and prospective lawyers study law?"

Pre-Engineering College Education

Now that it is agreed by the engineering educators that the education of engineers should contain a liberal content of humanistic-social studies, that the first four years after

high school should not attempt to go beyond the introductory fundamentals of engineering, and that further years of engineering study are needed to complete the educational preparation for professional practice, the underbrush has been cleared away and we can proceed with greater clarity, efficiency, and mutual understanding to consider other phases of the problem.

Let us now address ourselves to the question of the first two years after high school. Since physics and calculus are not reached until the second year of the present engineering school curriculum, and since these subjects are prerequisites to the study of the basic engineering sciences (such as hydraulics, thermodynamics, statics, dynamics, and mechanics of materials) and these in turn are prerequisities to the first real engineering courses, it should be obvious that *the first two years after high school are essentially pre-engineering years.* They contain little, if anything, that is not obtainable in the first two years of a scientific course in a general college. Any increase in their content of humanistic-social studies, as recommended by the S. P. E. E. Committee, will further reduce any remaining difference. *Then why not give the option of taking these first two years in a college of liberal arts and sciences?*

For the student, this would have the advantages of:

1. Postponing, to greater intellectual maturity and educational experience, a critical decision on choice of lifework.
2. Saving the student from a sense of failure and frustration if he decides, during this period, that engineering is not the career for him.
3. Giving the student, during his formative years, broader contacts with different types of personality, different viewpoints, and different fields of interest.
4. Giving the student a better opportunity to study and compare other domains of knowledge, other types of thinking, and other fields of activity.
5. Giving the student certain valuable intangibles of college life that are associated with the traditional college and that are somehow unfortunately missing from the conventional engineering school atmosphere.
6. Giving the student an opportunity to find himself, to get his feet on the ground, and to learn to study on the collegiate level, before he enters upon the more serious work of intensive professional training.

For the engineering school, this plan would have the advantages of:

1. Relieving the engineering school of much of the burden of sifting and screening to assure aptitude, ambition, preparation, and capacity.
2. Relieving the engineering school of much of the present high mortality of students who fail to make the grade in study at the collegiate level, who lack the persistence and determination, or who otherwise find that engineering is not the career for them.
3. Relieving the engineering school of the pressure to accept high-school graduates of inadequate preparation and aptitude.
4. Relieving the engineering school of the problem of adjusting curricula downward to meet the varying and frequently inferior standards of high school preparation.
5. Relieving the engineering school of the necessity of largely duplicating the curriculum of the first two years of the scientific course in the general college.
6. Relieving the engineering school of the necessity of devoting most of its time, resources, personnel, and energy to teaching the courses of the first two years after high school.
7. Freeing the engineering school to concentrate on its essential function, *engineering education.*
8. Facilitating the development by the engineering school of a sound, coördinated four-year program of engineering education above the pre-engineering level, with a degree in General Engineering at the end of two years and a degree in a major branch of engineering upon completion.

For the profession, this program would have the advantages of:

1. Raising the level of engineering education to that attained by other learned professions.
2. Providing a complete, coördinated program of educational preparation for the future members of the profession.
3. Providing the profession of the future with men broadly educated and thoroughly trained, equipped for leadership, constructive vision, and technical achievement.

For the public, this program would have the advantages of:

1. Saving the economic and human waste of disappointed ambitions, misguided selection of careers, half-qualified preparation for professional lifework, and narrowness of background, social orientation, and human relations.
2. Saving the economic waste of competition of schools and duplication of curricula.
3. Securing engineers more broadly educated and more thoroughly trained for public leadership and high professional service to society.

We are not discussing here the relative merits of "horizontal" or "vertical" stratification in the educational program. The engineering schools are left free to carry the "humanistic-social stem" up through the four years of engineering study to such extent as they may deem desirable.

We are not arguing here the relative merits of a liberal and a strictly technical education. It has been agreed that a combination of both is necessary and desirable.

The combination does not necessarily involve a loss of time for the student, since he has to spend two years, either in the engineering school or in the general college, in order to complete physics, calculus and other pre-engineering studies before he can start on his real engineering studies as now given in the third year of the engineering schools.

I do not know why there has been such a hue and cry raised by engineering educators against the suggestion that the two years of pre-engineering education might be taken in the general college instead of in the engineering school.

All I can do is to repeat my plea to engineering educators for fair consideration, professional vision, and an open mind.

The Function of Engineering Schools

In the recent report of the S. P. E. E. Committee on "Aims and Scope of Engineering Curricula," the statement is reiterated that the engineering colleges "should not limit their aim to preparing young men for professional registration and practice." That phrasing dodges an issue. No one is asking the schools to *limit* their function to preparation for the engineering profession. What we want to know is why the engineering schools do not recognize preparation for the engineering profession as *their primary and paramount function.* We want to know why the program of *engineering education* is not designed and proportioned for this primary function of preparation for professional careers, instead of being de-

(Continued on page 21)

Constitution of the National Society of Professional Engineers

PREAMBLE

The National Society of Professional Engineers, recognizing that service to Society, to State, and to Profession is the premise upon which individual opportunity must be builded does hereby dedicate itself, as an educational institution to the promotion and protection of the Profession of engineering as a social and economic influence vital to the affairs of men and of the United States.

ARTICLE I—OBJECTS

The objects of the Society shall be the advancement of the public welfare and the promotion of the professional, social and economic interests of the engineer by means of education, legislation, public relations, the establishment and maintenance of high ethical standards and practices through the development of a civic consciousness and the formation of State Professional Engineering Societies and chapters thereof throughout the United States.

ARTICLE II—HEADQUARTERS

The main offices of this Society shall be located at Washington, D. C., or such other place as may be designated by the Board of Directors.

ARTICLE III—MEMBERSHIP

Membership shall consist of Professional Engineers. A Professional Engineer shall be defined as follows:

(a) A person licensed to practice professional engineering in any or all of its branches in accordance with the laws of the state in which such person resides or practices.

(b) A person licensed to practice professional engineering in any or all of its branches in another state.

(c) A person certified by the National Council of State Boards of Engineering Examiners.

(d) A person certified by the Board of Directors of a constituent or cooperating State Society as being possessed of qualifications equivalent to those set forth in (a), (b) or (c).

Two years after the enactment of legislation requiring registration of professional engineers in any state, no person in such state shall be eligible for membership in the National Society, unless licensed to practice in accordance with the laws of that State. Sections (b), (c) and (d) will no longer be operative in such state.

No person residing or practicing in a state where a member society exists may obtain or retain membership in the National Society except through membership in such State Society.

ARTICLE IV—MEMBER STATE SOCIETIES

One organization, approved by the Board of Directors of the National Society, may be recognized in each state as a member society upon written acceptance of the provisions of this Constitution. A minimum of ten professional engineers shall be required for the formation and chartering of a Member State Society. Societies affiliated with the National body shall be limited to organizations, the majority of whose membership are recognized professional engineers. Two years from the date of the adoption of this Constitution eligibility for and retention of National affiliation of a State Society will require that every professional engineer member of such State Society must thereby become a member of the National Society.

ARTICLE V—OFFICERS

The officers of the Society shall be a President, four (4) Vice-Presidents, one chosen from each of the major areas of the United States as determined by the Board of Directors, a Treasurer, and an Executive Secretary who shall be appointed annually by the Board of Directors. The officers and directors shall take office on January 1st next following their election and shall hold office until the following January 1st or until their successors have been duly elected and qualified.

ARTICLE VI—BOARD OF DIRECTORS

1—The Board of Directors shall consist of the officers of the National Society, except the Executive Secretary; the two (2) immediate Past Presidents, and one representative for each Member State Society, who shall be named by the said State Society. Representatives may be represented by alternate. The Board of Directors shall determine questions of policy and shall meet on the call of the President or of a quorum of the Board.

2—One-third of the total number of members of the Board of Directors shall constitute a quorum. If a quorum should be lacking at any meeting the Board may be canvassed by letter ballot and a majority of the votes cast shall prevail.

ARTICLE VII—NOMINATIONS

Nominations for officers shall be made by a committee of five (5) who shall be appointed by the Board of Directors. Additional nominations may appear on the official ballot upon petition of fifty members, all of whom must be in good standing.

ARTICLE VIII—ELECTIONS

Elections of officers (except the Executive Secretary) shall be made annually by plurality vote on individual letter ballots sent to all members in good standing of the National Society.

ARTICLE IX—COMMITTEES

The Standing Committees of the National Society shall be:

Legislative
Public Relations
Professional Relations
Educational
Publication
Membership

Such other committees as may be desirable shall be appointed by the President and shall perform such duties as may be assigned by him.

ARTICLE X—CONVENTIONS

A convention shall be held annually at such time and place as may be selected by the Board of Directors.

ARTICLE XI—VOTING REPRESENTATION AT MEETINGS

Voting at meetings of the National Society shall be limited to duly accredited representatives from each of the Member State Societies. The basis of voting representation for each Member State Society shall be on the basis of one vote for each 200 members, or fraction thereof, in good standing. The election or appointment of voting delegates from a Member State Society shall be as determined by said Member State Society. Each voting delegate shall present to the Executive Secretary at a specified time before each meeting of the National Society, his credentials for inspection and approval. Member State Societies may at their discretion, authorize one or more of their members to cast all or part of the votes to which the Member State Society is entitled. Voting delegates, however, must be members of the respective Member State Societies for whom they are authorized to vote.

ARTICLE XII—DUES

The dues for membership in the National Society shall be $4.00 per year, which shall include the cost of the subscription to THE AMERICAN ENGINEER. These dues shall become due and payable on January 1 of each year. The dues shall be collected by the Member State Societies and shall be payable monthly to the National Society. For Registered Professional Engineers who are not members of State Societies and who reside in states where such societies have not yet been established, the dues shall be ten (10) dollars per annum, payable direct to the National Society.

ARTICLE XIII—STATE AUTONOMY

In all matters of State or local concern, the Member State Societies have full autonomy, but may call upon the National Society for advice, counsel and assistance. The National Society may recommend State Legislation and procedure in the interests of uniformity and efficiency, but action upon these recommendations shall be determined by the Member State Society.

ARTICLE XIV—AMENDMENTS

Section 1. Amendments to this Constitution may be proposed by:

(a) A majority vote of the Board of Directors
(b) Any Member State Society
(c) A petition signed by not less than 15% of the voting members in good standing of the National Society.

Section 2. Proposed amendments shall be mailed by the Secretary to each member in good standing, together with a letter ballot, not less than thirty days prior to the regular or special meeting at which the vote is to be canvassed.

Section 3. An amendment shall become effective only upon receiving affirmative votes of two-thirds of the votes cast by members entitled to vote, provided that not less than twenty per cent of the members so entitled to vote cast affirmative ballots.

Professional Development Makes Progress

Activities Reported at Annual Meeting of E.C.P.D.

Engineering Institute of Canada Becomes Member

By unanimous vote of the Council, the Engineering Institute of Canada became the eighth participating body of E.C.P.D. A delegation of members of the Institute, headed by J. B. Challies, past-president, E.I.C., was present. Dr. Challies, speaking on behalf of the president of the E.I.C., expressed the Institute's appreciation of the action by which it had become more closely affiliated with engineering bodies in the United States and announced the names of the Institute's representatives: J. M. R. Fairbairn, A. Surveyor, and J. B. Challies, all past-presidents of the Institute. He also introduced the other members of the delegation, Professor C. R. Young, of the University of Toronto, who was appointed to the Committee on Professional Training; H. F. Bennett, who becomes a member of the Committee on Student Selection and Guidance; and L. Austin Wright, general secretary, E.I.C. James A. Vance, who was not present, will serve on the Committee on Professional Recognition.

Reports Status of Accrediting

For the Committee on Engineering Schools, whose principal function has been the accrediting of curricula, Dean Potter reported as chairman. Incident to its accrediting program the Committee has given advice informally to schools requesting it. As of October 20, 1939, curricula to the number of 433 had been accredited unconditionally, 82 for a limited period, and, 172 had not been accredited. During 1939-1940 visits were made to 22 institutions for the purpose of reinspecting 70 curricula on the accredited list, and 17 institutions were visited in order to appraise 32 curricula not on the accredited list. As a result of the year's work and of actions taken on October 24, 1940, the record now stands as follows: Total curricula submitted, including reinspections, 791; accredited unprovisionally, 457; accredited provisionally, 83; not accredited, 164; reinspections resulting in no change in status, 82; action pending, 5.

Engineers' Council for Professional Development is a conference of engineering bodies organized to enhance the professional status of the engineer through the cooperative support of those national organizations directly representing the professional, technical, educational, and legislative phases of an engineer's life. The participating bodies are the American Society of Civil Engineers, the American Institute of Mining and Metallurgical Engineers, The American Society of Mechanical Engineers, the American Institute of Electrical Engineers, the American Institute of Chemical Engineers, the Society for the Promotion of Engineering Education, the National Council of State Boards of Engineering Examiners, and The Engineering Institute of Canada.

At the 1940 annual meeting of the Engineers' Council for Professional Development (E.C.P.D.) held on October 24 at the University Club, Pittsburgh, Pa., R. E. Doherty, president, Carnegie Institute of Technology, was elected chairman and Harry T. Woolson, executive engineer, the Chrysler Corporation, was elected vice-chairman. George T. Seabury, secretary of the American Society of Civil Engineers, becomes the E.C.P.D. secretary and H. H. Henline, secretary of the American Institute of Electrical Engineers, is assistant secretary. The other officers elected at the Pittsburgh meeting are A. A. Potter, past-president, The American Society of Mechanical Engineers, chairman of the Committee on Engineering Schools; Charles F. Scott, past-president, American Institute of Electrical Engineers, The Society for the Promotion of Engineering Education (S.P.E.E.) and the National Council of State Boards of Engineering Examiners, chairman of the Committee on Professional Recognition; R. L. Sackett, past-president, S.P.E.E. chairman, Committee on Student Selection and Guidance; S. D. Kirkpatrick, editor, *Chemical and Metallurgical Engineering,* chairman, Committee on Professional Training; and E. R. Needles, of Ash-Howard-Needles and Tammen, New York, N. Y., chairman of the Ways and Means Committee.

Employment of Engineers and Architects

H. R. 7635, introduced by Mr. Alexander and referred to the House committee on public buildings and grounds, provides that any department or bureau may employ competent professional engineers or architects in private practice to prepare or to assist in preparing designs, plans and specifications for new buildings and other structures, and compensate them for such services. The bill further provides that government agencies may also employ such consultants to prepare alternate designs, plans and specifications for new buildings or other structures which are estimated to cost $200,000 each, or more, under the following conditions: the Government agency to pay the out-of-pocket cost of preparation of the alternate design, including only labor, material, supplies, general office overhead expense, and necessary travel and sustenance, but no compensation for principals. Said alternate designs are to be advertised and submitted for bids at same time and under same conditions as base plans prepared by department or bureau staffs. If low bids on the alternate design, compared with low bids on the base plans, show a gross saving to Government equal to or greater than twice the amount of the full fee of the private engineers or architects who prepare them, including their out-of-pocket costs, the Government shall pay them the full fee.

Council has received several inquiries about this legislation and the author of the bill reports widespread interest among architectural and engineering societies. One important government agency has made an adverse report on it. To date the House Committee on buildings and grounds has made no plans for hearings. H. R. 7635 supersedes H. R. 7467, a bill providing for alternate structural designs, introduced by Mr. Alexander last August, and also H. R. 7568, of like title, introduced last October.

—*The Illinois Engineer,* December, 1940

The Engineer's Responsibility to Modern Society

By **JOHN F. LaBOON**

Member Pennsylvania Society of Professional Engineers

"IT is an historic moment through which Society is passing as if in a mad race towards what—nobody knows." "The human race is witnessing the greatest and most far reaching revolution which history records and is in large part under its control." "All in all, we are probably living in the most dynamic period of all history and the period of greatest potential opportunity." These are statements of famous men writing in review of present world conditions. And, what have these to do with the Engineer? A great deal, I believe we all will agree, for the Engineer perhaps had as much to do with the present status of our civilization as any other profession we could name. We are living today in what undoubtedly is the greatest era of mechanical development the world has ever witnessed. We may term this the "Machine Age". Most of the factors which have made the modern world have been operating wholly or largely in the past twenty years. This generation has seen the development of the automobile, airplane, wireless telegraphy, telephone, radio, movies and talkies, and so many chemical and mechanical inventions as to bring to our minds myriads of instances of such. Science and the Engineer are responsible for these developments and though outwardly, we are enjoying the fruits of the greatest civilization of all time, we today are using all these forces and blessings to annihilate each other in an economic war now sweeping the world. The engineer today is witnessing the odd spectacle of being threatened with annihilation by the Frankenstein which he helped to create. No, the engineer is not responsible for the ills of the world, nor is the Frankenstein going to devour him, but he must act promptly and intelligently and employ his ingenuity in leading the way to the solution of our modern social problems with the same zeal and talent that he employed to bring the state of world economics to its present condition, if we are to save our birth rights and keep from being thrown back into economic slavery.

Now, where does the Engineer become involved in world economics? By virtue of the fact that he was the tool by which production, through invention and science has so increased as to exceed by far the ability of modern nations to consume under the prevailing economic status of the masses. The Engineer in the end must lend his talent to the solution of the problem of stepping-up consumption so that it can keep pace with production, and this can be accomplished only by increasing the purchasing power of the masses.

Renowned economists cannot agree on the cause of our modern unemployment nor on the corrective measures to be employed. Some claim the solution lies in greater productivity—in unleashing the forces of finance and business so that greater investments of private capital may be made to increase the instruments of production, whereas, as a matter of fact, the depression of 1929 was brought about by the accumulated effect of the unbalanced distribution of income and purchasing power.

We witness today the spectacle, to name only some of the many current examples, of the steel industry building within the last decade at enormous expenditures of capital ranging into the hundreds of millions a sufficient number of strip mills of highly mechanized design to produce almost three times the normal power of consumption of the present, operating at 100% capacity, exclusive of the abnormal business conditions brought about by the World War and the preparedness program now being rushed by the United States.

Is such increase of productive facilities wasteful use of capital, or is it due to the operation of a vicious system of competition which seeks only to undersell with the greatest profit possible, and consequently leads to greater demands upon the Engineer to produce capital and labor saving devices in order that costs may be lowered still further? This is not wrong in itself but does result in economic ills when not properly controlled with regard to the ability of the masses to purchase.

It is faulty reasoning to expect these conditions to correct themselves any more than we expect the implements of production to create themselves. If society will organize itself under intelligent and unselfish leadership to attack this problem and bring about a proper solution of it, we would find it entirely unnecessary for peoples and their governments to pass through serious economic readjustments and even war and revolution when small minorities may, by force, inflict their conception of an economic Utopia upon the world.

It is unnecessary to outline here the development of our modern form of industrial production through the inventive genius and creative instinct of the Engineer. I desire, however, to take the opportunity to cite two of many examples of the fruits of the Engineer's efforts, and these are only cases chosen at random out of many which can be named without much effort, to illustrate how modern society has failed to keep pace with its productive expansion of industry and to emphasize the necessity for prompt corrective measures. The first case is that of the abandonment quite recently of a mill, evidently obsolete, which caused more than 1000 employees to lose their jobs and the opportunity to earn a living for their families. This will undoubtedly affect many more since our modern civilization is so complex that a major disruption of the normal processes such as this one affects not only the immediate families but also the neighborhood grocer, butcher, banker, mortgagor and many others as well. The second case is that of a small neighboring community located in a sparsely settled County where the two major industries which until now and for many years back had been the chief source of support for the entire city, suddenly mechanized and modernized their plant facilities so that under present conditions these industries are capable of producing the same output with only one-third of the former number of employees. Since these industries absorbed yearly practically the entire High School graduating class of 200, it is not difficult to picture the distress this situation has created when the 200 of the graduating class must now join the already unemployed legions through no fault of their own, nor through any fault of the Engineer whose ingenuity made possible the improvements which resulted in such great savings of time and labor and consequently savings in the cost of production.

The problem still remains for us as Engineers to help to solve. We, who bend our every faculty to produce time and labor saving devices should also give some thought to the problem of increasing our powers to consume the fruits of our labors, and this cannot be accomplished at the expense of unemployment.

The solution is not going to be easy nor will the Engineer alone be capable of producing the formulae. For after all, the Engineer, generally speaking, is an employe of industry itself but this should not keep him from searching for the correct answer, nor pointing to it when it is developed. Undoubtedly many answers will be forthcoming almost immediately, but caution is required if we are to keep from the pitfalls of others who have suggested the proper corrective measures without thinking them out to a conclusion. For, as the renowned British Economist, Mr. John Maynard Keynes once stated "In the United States it is almost inconceivable what rubbish a public man has to utter today if he is to keep respectable."

The answer does not lie in the theory that production may go on increasing indefinitely without a corresponding adjustment of the powers to consume the production thus created. The mere fact that capital is available for capital investment in industry does not justify such investment, nor does it solve the problem. For the time being the Engineer does have the problem in this generation of developing new fields for the consumption of our production in China, Africa and perhaps South America, but such outlets comprise only temporary expediencies and do not necessarily increase the consuming power of our own people nor help the unemployment situation materially. The problem is far more serious and difficult and the answer must be logical.

In our search for the answer two economic problems present themselves as being necessary for solution before much progress can be made. One is that our economy has come to "Maturity" and the other is that our population curve is leveling off so that the marketing field for consumption of goods will come to a standstill unless ways and means can be worked out so that greater consumption may be possible in spite of a declining population which will surely follow soon.

I am afraid I have attempted to cover a field which "Fools enter, where Angels fear to tread," because with such a complex modern civilization as ours is today the solution to our economic ills will not be easy nor forthcoming soon. However, we as Engineers have spent too much of our time and effort in increasing production and producing economies and have given too little attention to the study of the social question and how society is to make the best use of the scientific development of our age to which we have been not small contributors. The Engineer is by training and education an individual with a highly developed sense of ethics and truthfulness and good ethics is good economics. If we as engineers will only continue to think, and then to act, we will surely in the end be of a great assistance in alleviating the ills of a sorely troubled world.

Mid-Winter Meeting of N. Y. State Society

The date for the Mid-Winter meeting of the State Society has been set for Friday, February 28th, and Saturday, March 1, 1941. Engr. Gardner C, George will be the M.C. and by agreement of the Albany district chapters, or Zone 5 the City of Troy will do the honors, and the Hendrik Hudson Hotel will be the meeting place. While the Fall meeting at Jamestown was a huge success—professionally and socially—it is expected that the Troy meeting will surpass it.

The Illinois Society of Engineers

56TH ANNUAL CONVENTION

Hotel Sherman, Chicago, January 30, 31 and February 1, 1941

Annually the drums are sounded and the bushes and by-ways are beaten to draw attendance to the annual meeting. Annually it is stated that *this* approaching convention is to be the biggest ever. The lesson taught by the old story of the cry "wolf, wolf" when there was no wolf is repeated because few believe that the approaching convention is to be any better or any more outstanding.

The cry is not always wrong, however. The wolf does sometimes appear. None can successfully deny the outstanding character of our 51st Annual Meeting in celebration of our semi-centennial. Our most recent annual meetings have each improved markedly in papers, speakers, entertainment, and attendance.

All fooling aside, the 56th Annual Meeting should be and will be exceptional and unusual. Why? Because we are meeting in conjunction with and as host to the National Society of Professional Engineers. It is frankly the aim of the national organization and of this Society to promote the growing strength and influence of the N.S.P.E. in the Middle West. Because of the great promise that professional registration will become law in 1941 it is necessary that this Society be ready when the proposed legislation is enacted. Eligible engineers will become registered and their eligibility to membership in the N.S.P.E. will be *prima facie*.

"Professional preparedness for national defense" is the slogan of the meeting. Section chairmen have prepared their program to allow approximately one-half the time for discussion of public interest on engineering welfare and the remainder for the presentation and discussion of papers on professional development and improvement. Entertainment at the meeting will be attractive. A buffet supper with a floor show has been hinted at by the Local Committee for Thursday evening preceding the Annual Business Session of the Illinois Society of Engineers. On Friday evening following the principal address at the annual banquet another floor show is in the offing. On Saturday afternoon the Inspection Trip through a portion of the Chicago Subway adjacent to the Sherman Hotel is offered for those registered. On Friday afternoon the session is to be devoted to addresses by men of outstanding prominence in engineering affairs, in governmental activities, or in the public eye. Everything is being aimed to make this Friday afternoon session the high spot of the Convention. On Saturday afternoon immediately after luncheon and preceding the subway trip there will be a business meeting of the N.S.P.E. This session, together with that on Friday afternoon represents the attraction presented to the engineers beyond the confines of Illinois to come to the Convention. Experience indicates that many will come as shown by out-of-state attendance at Columbus last year.

—From *The Illinois Engineer*.

NATIONAL SOCIETY NEWS

Highlights of the meeting of the Board of Directors, December 14, 1940, at National Headquarters.

The Membership Committee presented application of Professor Rice of the University of North Carolina for membership at large. It was received and Professor Rice was admitted to membership.

Col. Simpson reported active work in the organization of a Member Society in Puerto Rico. Numerous contacts have been developed and the National office has furnished these contacts with information and material.

On the request of the Publications Committee, Editor Craig was authorized to issue a December issue of the AMERICAN ENGINEER as a Pre-Convention issue.

The Board appointed board members, Holbrook, Simpson and Sheridan to draw up letters of resolution regarding appointment of Col. Somervell and Henry M. Waite to Federal positions.

Engineer Louis Davidson, Chairman of the Patents Committee was present and reported for his Committee that consideration was being given to the advisability of introducing legislation regarding certain phases of the Patent situation at the next session of Congress. Definite report will be presented at the Annual meeting.

Ross B. Johnston, Editor of the *W. Va. Engineer* was present as a guest of the Board for the purpose of presenting a plan of cooperative advertising for the American Engineer and the Member State Society publications. Upon a motion of the Board a Committee was appointed to consider and develop the details of the plan presented, consisting of Engineer Wagner, Chairman, Engineer Zurmuhlen, Editor Johnston of W. Va., Editor Craig of the AMERICAN ENGINEER and Secretary Larson.

The Board designated Vice-President Sacks as a Committee of One to make a study of the definition of profession as made by the Wage and Hour Administration and report at the Annual meeting as to its actual meaning and effect on the members of the engineering profession.

The following were designated as a Committee to canvass the ballots for the election of the 1941 officers: William L. Bach, L. E. Van Allen and James J. Bowe, with authority to instruct the Executive Secretary to make formal notification to each officer elect.

Past President Sheridan was appointed the National Society of Professional Engineer's representative to the Advisory Board of the National Bureau of Engineering Registration.

The Board authorized the Executive Secretary to continue expenditures for January on the basis of the 1940 budget and designated Engineer Sacks of the Budget Committee with authority to act for the Board in conferring with the Executive Secretary relative to any "out of the ordinary" expenditures which might be required.

December 20, 1940.

The President of the United States,
The White House,
Washington, D. C.
Sir:—

The Board of Directors of the National Society of Professional Engineers has learned of the appointment by you of Lieutenant-Colonel Brehon Somervell, Corps of Engineers, United States Army, to the post of Chief of the Construction Division, Quartermaster General's Office, United States Army, and at a meeting held at the National Society Headquarters in Washington, D. C. adopted the following resolution by a unanimous vote:

"That we recognize and acknowledge the especial fitness of Colonel Somervell through his training and experience as an officer and a professional engineer to carry out the important duties of his new position. We have observed his notable and outstanding success as Administrator of the Works Projects Administration in the City of New York, which seems to clearly exemplify the wisdom of placing large public works in the hands of this competent engineer and proved executive.

"That we transmit to the President of the United States a copy of this resolution and express our gratification in the appointment."

Yours most respectfully,
JOHN C. RIEDEL, *President.*

December 20, 1940.

The President of the United States,
The White House,
Washington, D. C.
Sir:—

The Board of Directors of the National Society of Professional Engineers has learned of the appointment by you of H. M. Waite as a Consultant to the Bureau of the Budget, Defense Project Unit, of the United States Government. The Board of Directors wishes to express to you our appreciation of the honor shown the engineering profession in the selection for the Bureau of the Budget of an engineer with the recognized training and professional experience possessed by Mr. Waite. The appointment has given countrywide satisfaction to his engineering associates and friends.

Yours most respectfully.
JOHN C. RIEDEL, *President.*

N. Y. Engineers' 1941 Year Book

Engr. Frederick H. Zurmuhlen, President of the New York State Society of Professional Engineers, and Editor-in-Chief of the 1941 Engineers' Reference Manual or Year Book, announces that the book will be ready for distribution, as promised, on or about January 1, 1941. Every member of the Society, in good standing, will receive a copy of the Year Book, gratis. To non-members, the price will be $10.00 per copy.

As related in our previous bulletins the Manual will contain over 500 pages of vital information for Professional Engineers, and a wealth of information that is usually in demand by engineers.

See you in

CHICAGO

Our National Society

By **EDWARD LARSON**

***Executive Secretary,* National Society of Professional Engineers**

Address Presented at the Fall Meeting of the Pennsylvania Society of Professional Engineers at Hershey, Pennsylvania,

THE National Society is rather young, but I am amazed at the progress we have made in a few short years.

My first experience with the National Society occurred in Columbus, Ohio in 1935. I met many of you there, and I do not think any of us thought, at the time, that we would be where we are today.

Why do we have the National Society? Let us go back and paint a backdrop against which we can reflect our thoughts. The engineering profession, as such, is very young. We are having a lot of growing pains. We have no focal point in any one individual as has law in Blackstone or medicine in Hippocrates. But we are making progress. It is only 500 years or so since we have had the beginnings of an organized body of knowledge upon which we could build a professional status.

We have come down through the years and have made great strides. We have been in the background, doing our own work. People know very little about us, and we have found that we are not being given recognition, but, a profession to be recognized must first be recognizable. When you can find upwards of hundreds of adjectives attached to the term engineer, you cannot expect anything but confusion in the mind of the public. So, the registration acts have come into being, and we find the people conferring upon the engineer, as upon the architect, an honored title that sets him somewhat apart and gives him recognition for a job well done in time and money invested in training himself.

So we arrive at that time when we find engineers beginning to group themselves together in the technical societies which began to spring up in the middle of the last century.

Now there are three things about the professional man's extra-curricular duties outside of his practice to which he must give cognizance: First, if he is going to be a professional man, he must be a technologist. Three out of four of us, by virtue of lack of opportunity or time, cannot indulge in formal technical training on a post-graduate basis, but we must be posted on current progress and knowledge. And so the great technical associations came into being and have multiplied with increasing specialization. They are a very integral part of our set-up.

Then there are many problems that are strictly local and nothing else. There is the problem of how one engineer is going to get another engineer to do something with him, to cooperate with him. We are all social beings, doing our best when dealing with one another on a first-name basis. We also need a civic outlet where we can keep our fingers on the pulse of public improvement, keep our hand on the things for which we should assume responsibility, and give the public the rightful benefit of our knowledge and experience and viewpoint. Therefore we have need for a strictly local, social, civic organization. This is the local engineer's club.

But every branch of engineering has certain problems that are common to every other branch. It makes no difference whether you are electrical, civil or mechanical, or any other kind, as far as your branch activity and specialized training is concerned—your professional problems are the same—they are common to all of us.

We have organized ourselves to the extreme and have split our profession into many parts by failing to recognize the true function of each of these various organizations. We should not try to discuss technology in the same breath with professional objectives because we are going to get into deep water sooner or later. The professional man's professional problems are universal, they know no political boundaries, but we find ourselves, because of state laws, bound up by them.

There has come into being a new type of organization known as the professional engineering society, with its local, state and national aspects—and that is the one that we are considering tonight. What has brought the National Society of Professional Engineers into existence?

Some of you may remember the NRA and hearing the eagle scream. In 1934 there came a time when the engineers had to go to Washington to try to protect their own interests, to speak for themselves, to talk to the NRA. The state professional societies then in existence, stepped up to the conference table and were denied an audience because they represented a restricted geographical viewpoint. Then the technical societies stepped up and were likewise denied an audience because they represented a restricted technical viewpoint—but there was one organization that might speak for the engineers of the United States, one that was said to include all branches, that was said to included most states, and that, gentlemen, was the C.I.O. affiliate, the self-styled, "Federation of Architects, Engineers, Chemists and Technicians"—and it presumed to speak for the engineering profession.

Obviously that was rather a startling reception. The Pennsylvania Society and the other societies that were present, realized that here was a challenge and an opportunity for a new functional group that could do something within the profession, to be an organization of, by, and for the engineering profession, and so the National Society of Professional Engineers gained strength because of this challenge.

Some may ask, what does the National Society of Professional Engineers do except take four bucks apiece away from you? Engineers come to me and say: "I'll join when you show you have done something."

First of all, gentlemen, that premise is wrong. The National Society of Professional Engineers is not organized for the purpose of receiving rewards in the shape of memberships from individuals. It is organized as a reservoir into which individuals can put their collective efforts to get some results.

What is being done? The biggest piece of work going on right now, of course, is in the interest of national defense. On the 18th of May, the National Board of Directors offered the President of the United States and the Senate and the House of Representatives, the services of the Society, unqualifiedly. Immediately thereafter, the National Committee on Construction Preparedness was organized, comprising eleven member societies, of which the American Institute of Architects is one, and the National Society of Professional Engineers another, together with a number of technological societies.

Their first job was to take a census of all of the members, and as many non-members as could be reached, that

are in private practice as individuals or as firms. I might say here that the Quartermaster Corps has a group of clerks at work classifying those census returns on the basis of the markings shown thereon, and they are doing a very thorough job, and it is a fine survey. It is being consulted by the Recommending Board of the Quartermaster Corps as well as other governmental departments.

The second step will be a survey of the individual members as to their professional qualifications.

Immediately after the start of the private practice census and while it was still going on, the Quartermaster Corps began to organize its list of qualified construction superintendents and construction engineers. Our Washington office has sent out several hundred applications which were returned. There are about 20,000 on file in the Quartermaster Corps Personnel Office.

On August 19th—and remember, this is important as administrative procedure for the State Society—on August 19th the Quartermaster General ruled that no more applications would be received in Washington, but that all applicants for civilian positions must file at the local offices of the United States Civil Service Commission. So, if any of you are interested, or if any of your friends are interested, go to the nearest Civil Service Commission office and make application there.

While discussing this matter with the Quartermaster Corps, a Personnel Officer asked, "Is there any possible way to find out who the registered engineers in the country are?" At our request, letters were thereupon despatched to the registration boards by the Executive Secretary of The National Council of State Boards of Engineering Examiners asking for copies of the rosters; that two be sent to the Quartermaster Corps and six to our office. We have placed a complete set of those that we have on hand in the office of the F.B.I., and one in the office of the Reconstruction Finance Corporation.

There has been a tremendous lot of criticism as to concentration of engineering work in one or two offices. I have received a number of telegrams protesting this. I had a delegate from I think every member state society in the Union except California and Washington protesting this.

Constructive work is what we are looking for. We do not know all the reasons why all these things are being done. There may be very good reasons but until we have all of the facts we are not going to proceed. I just want to call that to your attention to show you that sometimes there should not be hasty action on a thing that may backfire, and when the state societies ask me to do things and I do not do them at once, be patient—there may be a real reason for avoiding haste or bad timing.

However, the Federal Government has done something that is very much open to criticism. The Comptroller General's office has ruled that after the first of June no consultant shall receive more than $25.00 a day, as a fee. Nobody can keep an office open, maintain a staff and be ready to practice on any such fee. The real reason why we need a hard hitting national society is to keep ourselves from being ruled out of existence.

On the whole, the Federal departments are very cooperative. We thought for a while that the United States Housing Authority was going to take an antagonistic viewpoint. Someone tried to side step the architects and engineers registration acts by going on the volumetric content basis in the size of project and taking each individual building as a contract basis. The Acting Supervisor ruled that it was not within reason that any person who was not qualified or not willing to comply with the state law could be entrusted with the supervisory technical work on housing projects. So, from now on there will be no more side-stepping on that.

The Civil Service Commission is doing things that are not in line with the best interests of the profession. I will cite you one case and there are many of them like it.

A man in the Ohio River district with a classification of Assistant Engineer in the hydraulic division, at the end of a year was denied the right of examination because he did not have, or rather they said they could not find he had had, a year of hydraulic experience. As a matter of fact, that particular man had been in the employ of a consulting engineer's office that specialized in water supply and sewage disposal. The final technical ruling was that he had not had a year of river hydraulics.

The Commission has sold itself down the river because the United States Engineer Corps thought enough of that man to take him and put him on at $26 a day as consultant. So you see the effect of all that is to keep the gradings going down and down and down, and the requirements up and up and up, until individuals who do not have a doctorate are unable to get a qualification for even an engineering aide.

Now there is another big problem. These are all governmental activities, and we need the help of all of these thousands of engineers in the Federal service. We need their help very much to keep us as a profession alive and alert and forward-looking in the interests of the public welfare. When men are burdened under conditions that stagnate their originality, they can no longer retain their professional status. We must help them.

There is another big thing that the National Society can do, and that is work of coordination. We have had two very sad legislative experiences in the State of Illinois and the State of Missouri—directly due to the activities and the actions of a small handful of misinformed individuals in New York State in the National Association of Power Engineers. Those men do not represent the attitude, the viewpoints and the desires of the organization. I had the very happy experience of spending two days with them at Columbus, the 19th and 20th of August at their Annual Convention. I have never had such a marvelous reception any place; I have never been treated with such marked respect. I am going to be awfully hard to live with the rest of the year from my experience with those men because I am beginning to think I amount to something after all. Strange to say, in spite of the opposition from the two states mentioned in the last legislative sessions, I could find no differences between us as two organizations.

There has been a lot of argument about what the "supervision of operation" means in our acts. I asked them if they wanted to put themselves in a position of relieving the consultant of his proper duties by taking away from him the right to inspect and pass on the testing results of his work, and they said, "Obviously not—we want a perfect plant."

On analysis we find that we are quibbling about two terms; "supervision" and "superintendency". The chief engineers of the corporations supervise the work of the chief designing engineer, chief construction engineer and chief operating engineer. They, in turn, superintend the functioning of their respective departments. We have never claimed any of their rights, unless we were qualified to superintend.

When that was placed before them, they said: "Then there is no argument". I think you will find from now on in the legislative matters the N.A.P.E. are going to be beside you demanding that the professional acts be streng-

thened and passed (where there are none) for their interest as well as for ours.

The N.A.P.E. National Committee has indicated they will do that for us on a national basis. There is a piece of cooperative work between two organizations on a national basis, and on one particular endeavor, that is going to produce some results.

Where there are no state member societies, the state registration boards find themselves oftentimes in the position of policemen, prosecutor and judge when they try to enforce the registration acts. Where the State member societies do exist, that personal embarrassment is possible of elimination because it is an action on the part of a society. The sooner the National Society gets member state societies in each state in the Union, the sooner we will relieve members of certain state boards of undue embarrassment.

I can report that the Minnesota Society of Professional Engineers has been perfected in organization and we hope that it will be only a short time before they will be a sister society of Pennsylvania. How soon I do not know.

One germ of organization has been sown in Wisconsin, and one of the organizers of the Texas Society has recently moved to New Orleans and is busy organizing the Louisiana Society. There is active organization work going on in North Carolina. Active work has started in North Dakota and Montana for the passage of a Registration Act. We are having correspondence with them.

There is another job—in fact there are two: the endeavor to bring a little order to the profession out of governmental work, and second, the organizing of the national coordination work. Something else that the National Society can do is to start the promotion of work to help the engineer to help himself by making new jobs.

I want to tell you a little story about one of our tire companies in Ohio. Shortly after the war, when things were demoralized, in 1919 and 1920, some one conceived the idea that tires were the big field and that they were used on the roads, but we didn't have any roads to amount to anything—so the tire company spent two and a half million dollars promoting the slogan "Ship By Truck". Now just how many engineers were in the forefront, in the vanguard, promoting the present highway systems?

How many engineers were helping Ford back in the days when he was building his joke book automobiles, before we even had anything but trails to drive them on? But there are today upwards of 20,000 engineers in this country who get their daily bread in highway departments as the results of the activities of those two groups. Some of those highway departments did not exist, except as skeleton organizations, back 20 or 30 years!

What are the engineers today doing to promote the construction of our much needed airports? Are they on the civic committees that are pushing the promotion of these airports? I will leave it to you.

What is the engineer doing to promote television?—as an individual in a civic, in a municipal, in a political sense? What are you and I as individuals doing to promote the utilization of the great field of plastics, the use of which seems endless. These are all promotional problems. What are we doing to hold up the hands of Dr. Berl in his work of taking the hydrocarbons that grow under God's sun and extracting gasoline out of them in two hours' time.

Sure it is visionary and years hence, but we have to consider our sons and the engineers of the future. There is a tremendous field of opportunity for us.

I might point out to you that at the end of the first World War there were 15 percent, approximately, of the engineers of the country in private practice. Last year we were able to find only five percent, who were still in private practice. The backbone of any profession is the man on the front line, fighting that every day struggle of meeting the payroll. Sure, we can be subsidized in government agencies. There are a lot of fellows on relief because they can't do anything about it—but, gentlemen, if we push these fields, the demand for engineers can be great. I can see right now, that we are going to have a nice shortage of engineers by the first of the year on this defense program, but when the defense program is over, where are we all going to go? Back to raking leaves, or what?

We have to look beyond our job of today and promote tomorrow's job. Our failure to do that has been our great fault. We have let someone else do our promoting for us. This organization operates like every other organization, but our brother engineers are oft times reluctant to pay for what they get. They will spend hundreds of dollars for insurance of various kinds, but when it comes to protecting that to which they have devoted years of their life, and thousands of dollars, that which gives them their livelihood, their place in society, makes them everything they are—it is strange that they should be so loathe to part with anything but pennies.

There is a tremendous field for the National Society to work in—there is a tremendous need for the National Society. It is the knitting-together organization. You gentlemen remember the old Rattle-Snake Flag. The thing that brought about the Union, that which we called the United States of America. Without union, this great country could not exist—there wouldn't be any country as we have today.

I leave it to you, gentlemen; it is the problem of the National Society to knit together the various state units into one strong working unit and to provide a united purpose and inspiration for all.

INDIANA

NEW MEMBERS

The following applications of engineers for admission into the Society were presented at the last meeting:

Claud M. Anspaugh, Columbia City.
Orin M. Darling, Fort Wayne.
Wayne Kehoe, Fort Wayne.
Chester A. Perkins, South Bend.
Jules T. Gradison, Indianapolis.
W. Kenneth Shick, Jr. Member, Laporte.

These make a total of 571 signed applications.

The Society wishes to congratulate these engineers and invite them to take an active part in the Society's affairs.

LEGISLATIVE COMMITTEE

The membership of the Society should be very grateful that they have Engineer Clyde Walb at the head of the Legislative Committee. This Committee has been very active in preparing a sure fire program to present to the Legislature when that body convenes in January.

Since the meeting held in Newcastle, as reported in the last issue of the IPE, there have been two similar meetings held, one in Rensselaer and one in South Bend. Both proved to be very successful in their scope as several members of the Legislature attended these dinner meetings and had a general discussion on Legislative matters with the engineers present.

It is the wish of Engineer Walb that a similar meeting can be arranged in Vincennes in the very near future.

Architects and the National Defense Program

(from The Octagon)

We are printing here additional abstracts from a message by Edwin Bergstrom, President, The American Institute of Architects, as published in *The Octagon,* a Journal of the American Institute of Architects—because it is the best written description we have so far seen regarding the whole program of building projects for National Defense.

It should be of interest to professional engineers, more especially those who are civil engineers, to determine their opportunities for assisting Our Country.—The Editor.

August Message

According to the awards published these Departments have allocated approximately $31,000,000 of construction work to be done by WPA and approximately an equal amount of housing work to be done by USHA.

The WPA projects comprise housing facilities for enlisted personnel, mess halls, recreation and administration buildings, facilities, utilities, etc. Design services for these projects probably have been furnished by the Departments.

The allotments to USHA are for housing projects outside of cantonments and posts and for homes for families of defense workers. The projects, nineteen in number to August 31, 1940, will be constructed by the local authorities established under USHA procedure, and we understand it is the intention that architects, landscape architects and engineers in private practice either have been or will be engaged by these authorities to furnish the design services. The compensation offered to the architects for their services seems unreasonably inadequate, according to communications from our members.

The members of the architectural profession should not be expected nor asked to render their services in defense housing on a lesser basis of compensation than is granted to the other factors engaged in defense work. The design professions should receive a reasonable remuneration for their services.

Federal money for housing projects comes from three sources: funds directly appropriated therefor by Congress; defense appropriations of the Army and Navy; allocations by the president from funds at his disposal.

The funds directly appropriated by Congress for defense housing up to the date of this message are as follows:

(1) Act designated at Public—No. 781. Section 201 provides $100,000,000 for defense housing.

(2) Joint Resolution, H. J. Res. 607.

This resolution has just been approved by the President and appropriates $338,250,000 for Military Posts: "for construction and installation of buildings and appurtenances thereto . . . for acquisition of land. . . ."

It seems to be the opinion that a large portion of this appropriation will be used to provide housing for the new army.

(3) Congress has before it an additional bill, H. R. 10412.

This bill has passed the House and is being considered by the Senate. It appropriates $150,000,000 for defense housing.

The $100,000,000 provided by Act, Public No. 781, is to be available:

"To the President for allocation to the War Department and the Navy Department for the acquisition of necessary land and the construction of housing units, including necessary utilities, roads, walks, and accessories, at locations on or near Military or Naval Establishments, now in existence or to be built, or near privately owned industrial plants engaged in military or naval activities, which for the purposes of this Act shall be construed to include activities of the Maritime Commission, where the Secretary of War, the Secretary of the Navy, or the Chairman of the Maritime Commission shall certify that such housing is important for purposes under their respective jurisdiction and necessary to the national defense program. . . . Provided, That the average unit cost of such housing projects, including acquisitions of land and the installation of necessary utilities, roads, walks, accessories and collateral expenses shall not be in excess of $3,500: Provided further, That in carrying out the purposes of this section the Secretary of War and the Secretary of the Navy may utilize such other agencies of the United States as they may determine upon: Provided further, That the Secretary of War and the Secretary of the Navy, at their discretion, are hereby authorized to rent such housing units, upon completion, to enlisted men of the Army, Navy, Marine Corps with families, to field employees of the Military and Naval Establishments with families, and to workers with families who are engaged, or to be engaged, in industries essential to the military and naval national defense programs, including work on ships under the control of the Maritime Commission. . . ."

The War and the Navy Departments are to be the administrators of the act although they: "may utilize such other agencies of the United States as they may determine upon."

The $150,000,000 provided in the bill, H. R. 10412, was introduced at the request of the Housing Coordinator and when introduced provided "housing for persons engaged in national-defense activities and their families. . . ."

I do not quote further provisions of the bill for they may be materially changed when they emerge from the Conference Committee for final passage, but it should be noted that the money was to be placed at the disposition of the Federal Works Administrator and that the Public Buildings Administration was named to have charge of the administration of the work contemplated in the bill. This distinguished the bill from the Act, Public—781 for the latter makes the Army and the Navy Departments the administrative agencies.

The President heretofore has advanced $10,000,000 for defense housing projects. The bill, H. R. 10412, provides that this amount shall be returned to him out of the money available under the bill. Whether or not he will make further allocations will probably depend upon the circumstances as they develop.

It is the hope of the Housing Coordinator that private money can be enlisted to build and operate a good part of the required housing, but the inducements to be offered to private investors have not been announced. Evidently a large private capital investment is counted on, because the Federal money so far appropriated for defense housing apparently will not produce anywhere near the number of housing units listed as needed.

One method suggested is that the Government shall build the civilian defense housing and then offer it to private investors at a nominal value that will represent an equity after depreciation. The private investors might be attracted by this equity and be willing to take over this property and operate it, particularly if his investment were further protected by special insurance.

The persons for whom, in the language of the bill, H. R. 10412, this housing is to be provided include: "(1) enlisted men in the navy or military services of the United States; (2) employees of the United States in the Navy and War Departments assigned to duty at naval or military reservations, posts, or bases; (3) workers engaged or to be engaged in industries connected with and essential to the national defense."

All civilian housing work will be placed under the jurisdiction of one or more Federal agencies. Which of these agencies will be designated is not yet announced. Some of it is being done by USHA and a great deal more of it may be done by that agency. The Public Buildings Administration, which was part of the old Procurement Division of the Treasury, expects to do a large portion of the work. There are other agencies which may be designated.

It is the announced intention of USHA to work through the local housing authorities. Under the procedure heretofore established by USHA that would seem to indicate that the local authorities would select and engage the architects and award the construction contracts for the work, which would assure participation by private architects.

The Public Buildings Administration could follow a similar procedure, but I have an idea that agency may prefer to use its own drafting bureau to provide the design services.

The Institute, the American Society of Civil Engineers, and the American Society of Landscape Architects are working jointly on matters affecting them in connection with this defense housing. They have filed a statement with Honorable John M. Carmody, Federal Works Administrator, requesting, in effect:

1. That competent architects, engineers, and landscape architects in private practice be engaged;
2. That practitioners practicing within the vicinity of the project be engaged, unless none competent can be found in the immediately locality;
3. That the practitioners be employed by direct contracts with the Government, and not be engaged by, or employees of, any other factor of the construction industry;
4. That the terms of the contracts of employment should be equitable and proper and the compensation to the architects be fair and adequate, taking into consideration all the risks and the time involved;
5. That the awards should be as widely distributed geographically and to as many practitioners as practicable;
6. That each project should be put on under a local representative of the Federal agency, empowered to make all decisions with respect to the project and thereby avoid the necessity of travel to Washington.

With the statement was filed a form of contract which the representatives of the three design professions had agreed on. The form is on a cost-plus-fixed fee basis, and follows very closely the one developed with the War Department.

The fee schedule was not discussed at the meeting with the Administrator, but will be at the future conference.

It was brought out in Congress that the total defense housing needs might not be less than 226,000 housing units. In money this will amount to more than $750,000,000, if the average cost of the unit is assumed to be $3,500; as set out in the Act, Public—781. The discussions in Congress have indicated that this average cost per unit may be too high considering the temporary character of some of the projects. The Act states that this cost limit includes "acquisitions of land and the installation of necessary utilities, roads, walks, accessories, and collateral expenses."

Of the 226,000 units, 30,000 are expected to be provided for in the $100,000,000 appropriation, and 10,338 under the housing projects approved by the President. This leaves more than 185,000 not provided for. Of these, perhaps 50,000 will be provided for in the bill, H. R. 10412.

OHIO

Hal G. Sours of Akron, O., a past National director of N.S.P.E. has been named director of the Ohio department of highways by Gov. John W. Bricker.

Mr. Sours succeeds Major General Robert S. Beightler, resigned, and now in command of the Ohio National Guard, in training at Camp Shelby, Miss.

Previous to his appointment as director, Mr. Sours since early in 1939, has been assistant director of highways and chief engineer of the department. He is married and with his family, Mrs. Sours and their son and daughter, have been living in Columbus since he became associated with the highway department.

A year ago Mr. Sours was elected president of the American Road Builders Association, without opposition, the first time such an honor was ever bestowed upon a highway department official from Ohio by that nation wide organization. Only recently Mr. Sours was nominated for a second term as president of the ARBA, again without opposition, the election to come early in 1941 at the New York convention of the organization.

Director Sours was born at Manchester, in Summit county, and attended school in Barberton. He attended Akron university, studying engineering, graduating in 1916. During the World War, Mr. Sours volunteered for the artillery branch of the army, serving at Fort Monroe, Va. He came out of the service as a second lieutenant. At Akron university he took a prominent part in athletics being captain of the football team.

Mr. Sours is a member of the American Society of Civil Engineers, past president of the county division of the American Road Builders Association; past president of the Ohio Engineering Society; and is a member of and past chairman of the Ohio Engineers' Registration Board.

BOARD AND OFFICERS FALL MEETING

AKRON SOCIETY (Summit, Portage and Medina Counties)
- A. L. Richmond, Akron—President
- John S. Kennedy, Akron—Delegate to O.S.P.E. Board

CANTON REGIONAL SOCIETY (Stark, Holmes, Tuscarawas and Carroll)
- Chas. H. Fritche, New Philadelphia—Delegate to O.S.P.E. Board, Chairman, O.S.P.E. Nominating Committee

CENTRAL OHIO SOCIETY (Knox, Licking and Fairfield Counties)
- Frank E. Withgott, Mt. Vernon—President-Elect
- Walter W. Graf, Lancaster—Delegate to O.S.P.E. Board, Chairman, O.S.P.E. Board of Visitors, Member, Engineer's Registration Board

CINCINNATI CHAPTER (Hamilton County)
- Thornton Bogert, Cincinnati—President, Delegate to O.S.P.E. Board
- N. R. Patton, Cincinnati—Secretary
- Jack Fuller, Cincinnati—Constitutional Reorganization Committee
- Charles H. Stamm, Cincinnati—Constitution reorganization Com.

CLEVELAND SOCIETY (Cuyahoga County)
- W. C. Kammerer, Cleveland—1st Vice-President of

O.S.P.E., Delegate to O.S.P.E. Board, Chairman, Professional Practices Com.

DAYTON SOCIETY (Montgomery County)
Fred J. Cellarius, Dayton—2nd Vice-President of O.S.P.E., Chairman, History Committee
E. F. Stansberry, Dayton—Secretary & Treasurer
Robert E. Gray, Dayton—Delegate to O.S.P.E. Board
Hubert M. Kline, Dayton—Member Dayton Society

ENGINEERS CLUB OF COLUMBUS (Franklin County)
H. E. Nold, Columbus—President of O.S.P.E.
Merrill Weed, Columbus—Delegate to O.S.P.E. Board, Chairman, O.S.P.E. Public Relations Com.
Harry H. Turner, Columbus—Secretary, Engineers Club
William S. Dun, Columbus—Secretary, O.S.P.E.
E. F. Coddington, Columbus—Member, Official Landmarker Com.
C. L. Seelbach, Columbus—Secretary, O.S.P.E. Industrial Section
R. R. Litehiser, Columbus—O.S.P.E. Delegate to N.S.P.E. Board Chairman, Constitution Committee
Lloyd A. Chacey, Columbus—Chairman, Membership Trophy Com., Secretary, Salaries of Engrs. in Public Employment Committee

GALLIA-JACKSON-LAWRENCE SOCIETY (Gallia, Jackson, Lawrence Counties)
R. E. Bischoff, Gallipolis—President
Grover C. Kinley, Ironton—Delegate to O.S.P.E. Board

HOCKING VALLEY SOCIETY (Perry, Hocking, Athens, Vinton & Meigs Counties)
George W. Clark, Athens—Secretary, Chairman, O.S.P.E. Official Landmarker Com.

JEFFERSON COUNTY SOCIETY (Jefferson County)
R. H. Spencer, Mingo Junction—President, Delegate to O.S.P.E. Board, Secretary, O.S.P.E. Municipal Engr. Section

LAKE ERIE CHAPTER (Erie, Huron & Lorain Counties)
J. B. Nichols, Lorain—President & Delegate to O.S.P.E. Board
P. H. Watkins, Sandusky—Vice-President
C. B. King, Lorain—Secretary & Treasurer
H. N. Morris, Sandusky—Chairman, O.S.P.E. Engr. Construction Sec.

MAHONING VALLEY SOCIETY (Trumbull, Mahoning & Columbiana Counties)
R. D. MacLean, Niles—Director

MAUMEE VALLEY SOCIETY (Williams, Defiance, Henry, Paulding, Putnam, Van Wert, and Allen Counties)
C. Raymond Hanes, Lima—Delegate to O.S.P.E. Board, Chairman, O.S.P.E. Highway Engr. Section

MID-WESTERN OHIO ENGRS. & SURVEYORS ASSOCIATION (Mercer, Darke, Auglaize, Shelby and Logan Counties)
E. J. Salsinger, Sidney—Secretary & Treasurer

NORTH CENTRAL OHIO ENGRS. ASSOCIATION (Crawford, Richland, Ashland & Wayne Counties)
Henry M. Lear, Wooster—President, Delegate to O.S.P.E. Board
Harold H. Slater, Smithville—Secretary

NORTH EAST OHIO SOCIETY (Lake, Geauga, and Ashtabula Counties)
A. B. Wilson, Painesville—Secretary

PORTSMOUTH SOCIETY (Scioto County)
Earl C. Hayes, Portsmouth—President

SOUTHERN OHIO CHAPTER (Madison, Pickaway, Fayette, Clinton, Ross, Pike, Highland, Clermont, Brown & Adams Co.)
H. L. Krauser, Chillicothe—Vice-President
Joseph N. Doyle, Portsmouth—Constitution Committee
H. G. Wood, Chillicothe—Constitution Committee
A. P. Cooper, Georgetown—Delegate to O.S.P.E. Board, Chairman, O.S.P.E. Membership Com.

SPRINGFIELD SOCIETY (Green, Clark, & Champaign Counties)
W. J. Hazeltine, Springfield—Chairman, O.S.P.E. Industrial Sec.

TOLEDO SOCIETY (Lucas & Wood Counties)
Carleton S. Finkbeiner, Toledo—Past President of O.S.P.E., Chairman, Violations Committee
C. E. Pettis, Toledo—Secretary & Treasurer, Chairman, 1941 Convention Committee
A. S. Forster, Toledo—Delegate to O.S.P.E. Board

That was a pretty good representation. If someone from your group was not present—WHY NOT??

NEW YORK

History of Kings County Chapter

President Frederick H. Zurmuhlen of the New York State Society of Professional Engineers and Editor-in-Chief of the first issue of the *Engineers' 1941 Manual,* announced at the Fall meeting of the Society held at Jamestown, New York, that he wished to include in the publication a history of each Chapter in the State. He subsequently sent out follow-up memorandums to each Chapter telling them that unless the histories of all the Chapters were in his hands by the tenth of this month *none would be published in the Year Book*—well, about five of the Chapters did not come through, so that none will appear in this issue. However, since ours was sent in, we thought you would like to read it—so here it is:

On April 4, 1928 a meeting for the discussion and formation of a temporary or preliminary organization of Kings County Chapter was held at the residence of Engr. Edward A. Byrne, 295 St. Johns Place, Brooklyn.

Those present were: Engrs. Emil Bie, Edward A. Byrne, Charles W. Burke, Otto Claussner, Roy C. Cram, Philip P. Farley, Ely Gamse, Royal W. Gilkey, Henry J. Kolb, Frederick E. Lane, Harry D. Leopold, John Charles Riedel, Adolph Shpiesel, Joseph A. Vertefeulle, Frederick Ward and Arthur V. Sheridan, erstwhile President of the State Society. Engr. Roy C. Cram acted as Temporary Chairman, and Engr. Royal W. Gilkey, Temporary Secretary.

The discussion centered particularly upon the needs for the formation of such an organization and State President Sheridan addressed the gathering at some length in explanation of furthering the aims of the State Society, and urged that a petition signed by at least five members be submitted to the State Society for approval of a chapter in Kings County.

Engr. John Charles Riedel, President of the Brooklyn Engineers' Club tendered the use of the clubhouse for chapter purposes with possibilities for cooperation with that body being touched upon during the discussion.

On March 10, 1929, a meeting was held at the Brooklyn Engineers' Club when the Constitution and By-Laws were presented and adopted, a copy of which, together with a signed petition of the fifteen organizers mentioned heretofore, was forwarded to President Arthur V. Sheridan of the State Society, and a Charter for the Kings

County Chapter was formally presented to its officers at the Annual Convention of the State Society held in New York City on April 3, 1929.

On March 18, 1929, a meeting of the temporary organization was held at the Brooklyn Engineers' Club House for the purpose of effecting a permanent organization which resulted in the election of the following officers:

Frederick Ward .....President
Edward A. Byrne .....Vice-President
Joseph A. Vertefeuille .....Treasurer
Roy C. Cram .....Secretary

The Chapter has made rapid strides during the past decade and is now the leading chapter with an enrollment of 346 members with a financial status as follows:

12 members paid 1937 dues
18 members paid 1938 dues
54 members paid 1939 dues
242 members paid 1940 dues
20 members paid 1941 dues (new members)

346 total

About a year ago the Chapter began the publication of a monthly periodical known as the Kings County Professional Engineers' Bulletin which has climbed steadily from a mere announcement, to its present position, as an important technical publication, which we believe to be of great benefit to the Chapter, Engineers generally and to the Public. It is furnished free to its members to the State Society Officers, Directors and Chapter Presidents, and to various schools, colleges, libraries, teachnical societies, and others.

The Officers of the Chapter from its inception up to date are as follows:

Year 1929-30—Frederick Ward, President; Edward A. Byrne, Vice-President; J. A. Vertefeuille, Treasurer; Roy C. Cram, Secretary.

Year, 1931-32—Charles W. Burke, President; Erich Hausmann, Vice-President; Otto Claussner, Treasurer; Roy C. Cram, Secretary.

Year, 1933-34—Linford S. Stiles, President; John C. Riedel, Vice-President; Otto Claussner, Treasurer; Roy C. Cram, Secretary.

Year 1935-36—John C. Riedel, President; J. A. Vertefeuille, Vice-President; Otto Claussner, Treasurer; Roy C. Cram, Secretary.

Year, 1937—J. A. Vertefeuille, President; James F. Fairman, Vice-President; Otto Claussner, Treasurer; Geo. A. Dorfman, Secretary.

Year, 1938-41—James F. Fairman, President; Louis A. Walsh and James F Fouhy, Vice-President; Otto Claussner, Treasurer; Geo. A. Dorfman, Secretary.

PENNSYLVANIA

The officers and Board of directors of the State Society of Professional Engineers held their annual meeting in Harrisburg, December 7, 1940, which was attended by representatives of the Pittsburgh, Philadelphia, Northeast, Reading, Lehigh Valley and Harrisburg Chapters. Representatives from the Midwest, Erie, Greensburg and Johnstown Chapters were unable to be present.

The results of the annual election of officers was announced as follows:

President—Engineer James A. Powell, Reading, Pa.
1st Vice-Pres.—James S. Devlin, Pittsburgh, Pa.
2nd Vice-Pres.—G. Edmund Geyer, Philadelphia, Pa.
Director-at-Large—Fred W. Talbot, Erie, Pa.

These officers will be installed and take office the 3rd Saturday in January 1941.

It was also interesting to note the result of the voting, as to whether the dues to the State Society should be raised $2.00, making the total dues paid by each member to the Society $4.00 instead of $2.00. The vote was overwhelmingly in favor of the increase, with more than two-thirds of the ballots cast being in favor of the increase. Dues now paid by members are $4.00 to the National Society and $2.00 to the State Society.

As a result of the voting, each member in 1941 will pay $4.00 to the National Society and $4.00 to the State Society plus Chapter dues.

The proposed Joint Code of Ethics for Architects and Engineers was discussed and referred back to committee for further discussion and to be presented to the Executive Board at a later date.

Engineer T. W. Battin, Past President of the State Society, former Executive Secretary and later Executive Secretary Emeritus, was made a life member of the Society free from further assessments or dues in consideration of his past excellent service in organizing the Society and the giving of much of his time to the Society's work.

The revised Constitution and By-Laws of the State Society was presented and a copy will be sent to each officer and director of the Society for their study and recommendations.

Two hundred dollars was voted to the Philadelphia Chapter enabling them to proceed with cases of violation of the Registration Act.

The Executive Secretary was empowered to employ a full-time stenographer at not more than $80.00 per month, to become effective December 15, 1940.

The Board authorized the Harrisburg Chapter to appoint a committee to contact the State Department of Education, Law Enforcement Division, to learn if possible why the Society cannot get the same recognition as other professions.

Executive Secretary, Treasurer and Financial Secretary will be appointed at the next meeting of the Board.

It is proposed that during the year 1941 the Executive Board will hold meetings on the 3rd Saturday of every alternate month beginning with January.

WEST VIRGINIA

Following the nomination of officers for 1941 at the recent state convention of the West Virginia Society of Professional Engineers at Morgantown, the members of the Society by ballot have elected the following officers for next year:

President, H. W. Saunders, Coopers; first vice-president, Theodore Bloecher, Jr., Wheeling; second vice-president, Owen M. Jones, Glen Ferris; treasurer, Robert Williamson, Jr., Charleston; director, 1941, George C. Barnes, Jr., Williamson; directors, 1943, C. P. Fortney, Charleston, J. H. McKinney, Parkersburg, Ernest L. Bailey, Charleston, Charles Snyder, Fairmont. The executive secretary will be chosen by the board of directors at their meeting in December.

The following directors are hold-overs and will serve with the above officers for 1941: J. Paul Blundon, Keyser, Kyle L. Bruce, Bluefield, William S. Downs, Morgantown; for 1942, John R. Seckman, Clarksburg, J. M. Clark, Charleston, A. O. Baxter, Marlinton, H. A. Levering, Huntington; ex-officio members; Roland P. Davis, Morgantown; M. L. O'Neale, Huntington.

Engineer's View (Steinman)

(From page 8)

luted, weakened, retarded, and confused, with other functions, that should be secondary, cited in justification.

The medical profession has its medical schools, the legal profession has its law schools—and the engineering profession is entitled to have its engineering schools, conceived, planned, and dedicated to professional preparation as their essential and primary function.

The S. P. E. E. Committee report recommends that engineering courses now in the curriculum be transferred to the postgraduate period, and suggests that "preparation for the higher technical levels of engineering" must be found in such postgraduate courses. As I interpret this, the four-year curriculum of the conventional engineering school is to be diluted into a pre-engineering course, all pretense that it is adequate preparation for professional lifework is to be given up, and the graduate is then to be told that if he wants a real engineering preparation for his chosen profession he must find it in such post-graduate courses as may be offered.

If this philosophy is carried out, the "engineering school" will be little more than another general undergraduate college course, majoring in science and mathematics, and flavored with a sprinkling of introduction to engineering. The designation "engineering school" will then be a misnomer in any professional sense, and *the problem of providing a comprehensively planned, coordinated, and adequate program of preparation for the engineering profession will not be solved.*

I want to see the engineering schools realize that their *primary* function is the training of the *engineers* of the future.

The engineering schools now claim that they have a three-fold function:

1. The training of technicians.
2. The training of engineers.
3. The training of "executives."

To cover this wider range, the educators have recently devised a new phrase—the "Engineering Fraternity," as something vaguer, larger and more inclusive than the "Engineering Profession." I believe that this phrase tends to obscure the issue and will retard real progress. It is an evasion of the focal problem of designing an educational program for the training of *engineers.*

The present claimed necessity of training technicians, professional engineers, and non-professional "executives" in a single curriculum leads to compromise, dilution, and inadequacy of the educational program and to a lowering of standards.

All are agreed that the training of technicians should be relegated to trade or technical schools. We need more such schools. Following the recent inauguration of E. C. P. D. accrediting, some of the schools that had been doing a fine job of vocational training decided to lengthen their courses to the orthodox four-year pattern in order to qualify as engineering schools. (This undesirable development is now being blamed on engineering registration. As usual, any good accomplished by E. C. P. D. accrediting is credited to E. C. P. D., and any untoward results are charged to registration.)

The development of more vocational schools for the training of technicians should be encouraged, and more of the applicants for engineering school enrollment should be diverted to such vocational schools. The world has need for good surveyors, draftsmen, inspectors, laboratory assistants, trained machinists, operators, and service men; but the professional school is not the place for training them.

Nor is there any valid reason why the training of professional engineers and non-professional "executives" should be identical. The respective educational programs may properly overlap, but there should be an appropriate differentiation of intensity and scope, particularly after the pre-engineering subjects are covered. The non-professional "executive"—the man who will have some contact with engineering or construction without undertkaing engineering work himself—does not require the full intensive technical training of the engineer. On the technical side, beyond an introduction to the basic sciences and the scientific mode of thought, the non-professional "executive" needs to know little more than the nomenclature of engineering.

In order to make my thoughts on this subject concrete, and as a basis for further discussion, I offer the following program of education and training for the three fields of lifework:

1. *For the Technician*—After high school graduation, two years in a good vocational school, with graduation recognized by a diploma.
2. *For the Engineer*—After high school graduation, two years in the *scientific course* (or pre-engineering course) of a college of liberal arts and sciences, followed by two years of *general engineering* in an accredited engineering school (at approximately the present third and fourth year level) with the degree B.E. conferred at this stage, and finally two years of more intensive training in the selected *major branch of engineering* in the engineering school with the degree of the type B.C.E. conferred upon graduation.
3. *For the "Executive"*—After high school graduation, four years in the *scientific course* of a college of liberal arts and sciences, receiving the degree B.S., followed by two years of *general engineering* in an accredited engineering school (at approximately the present third and fourth year level) with the degree B.E. conferred at this stage.

I believe this is a logical differentiated program to take care of the three categories of training with which the engineering schools now consider themselves charged. It involves a raising of the level of engineering education to a truly professional level.

The indicated successive degrees are merely a suggestion. To me they are of minor importance, but I have inserted them merely to answer the questions of educators who are insistent on "terminal points."

Accrediting of Engineering Schools

When registration laws made it necessary for the several states to have lists of approved engineering schools, the National Council of State Boards of Engineering Examiners began to formulate an accrediting program for uniformity of standards. The engineering educators fearing that such program might get out of their control, seized the opportunity afforded by the formation of E. C. P. D. to launch the E. C. P. D. accrediting program.

With the first round of inspections and reports completed, we find that engineering curricula in 118 schools have been approved by E. C. P. D. Long before this, the New York State Education Department had developed its own procedure of appraising, inspecting and approving engineering schools for the benefit of professional registration, and has found engineering curricula in only 95 schools meeting its standards. E. C. P. D. would enlarge this number of accepted schools from 95 to 118. I do not call this a raising of standards.

The earlier reports of E. C. P. D. accrediting gave some encouragement to hopes of a genuine effort to dis-

tinguish between standard and substandard schools; but in 1939 the E. C. P. D. Committee examined or re-examined curricula in 50 engineering schools previously omitted, turned down, or provisionally accredited, and approved all for accrediting except one or more curricula in four of those schools. The E. C. P. D. list now includes a number of schools that have generally been regarded as sub-standard. Elimination or rejection has been avoided, provided the school made any reasonable showing of the Procrustean pattern of a four-year curriculum. The only curricula in which a commendably high standard has been maintained for accrediting are those in chemical engineering; and that is because the American Institute of Chemical Engineers reserved to itself the decision on these courses, instead of turning them over to E. C. P. D. to lower the bars.

In my years of contact with E. C. P. D. accrediting, I have heard much about physical and financial conditions and about minor adjustments or comparisons of curricula, but have heard little or nothing of the two most important considerations, namely *the quality of the teaching* and *the mastery of engineering concepts and methods by the students.*

In the questionnaire filled in by the engineering schools, which is the first thing studied by the accrediting committee, the first four headings out of a total of nine relate to Organization and Administration, Physical Plant and Facilities, Finances (including administrative salaries and teaching salaries), and Staff Salaries, Tenure, and Retirement. After the first round of E. C. P. D. accrediting, it was common to meet engineering educators engaged in mutual felicitation on the fine results achieved in terms of additional teaching appointments and increases in salaries.

E. C. P. D. accrediting, although conducted in the name of the seven participating societies, is handled almost exclusively by the engineering educators. There is a sprinkling of practicing engineers on the committees, but this appears to be largely for window-dressing; the actual participation of the non-educators is much smaller than their inclusion in the printed list would indicate.

That the end-product of accredited engineering schools does not reach any uniformly satisfactory minimum standard of educational equipment and understanding is sadly revealed by the oral and written examinations of state registration boards. Until accrediting is made a genuine sifting and screening operation, the educators cannot consistently continue their demand that the graduates of accredited schools should be blindly accepted as educationally qualified without further examination. Failure to make accrediting what it should be will undo much of the progress that has been won in writing recognition of engineering education into the registration laws. Testing of the end-product—the graduate— by comprehensive examinations administered by state registration boards will become the criterion rather than the mere fact of graduation from an accredited engineering school, and E. C. P. D. accrediting will lose its significance.

Engineers' Registration

Engineering educators have obstructed, or have failed to cooperate with, the engineers' registration movement. I do not know why. Charge it to ignorance or to characteristic resistance to progress. "Shall Engineering be a closed profession?" is the issue they have raised. They do not realize that registration has done more than anything else to establish engineering as a *learned* profession, with emphasis on professional *education* as an essential prerequisite. Registration is making it more and more difficult for men to get into the profession through the backdoor route without an engineering education. In 1929, the New York State Registration law contained no requirement of education or examinations. Now both are written into the law. Moreover distinct recognition has been recorded for the approved colleges of engineering: The relative handicap imposed upon the non-graduate, in terms of the longer qualifying experience required, has been progressively increased from two years to eight years. Finally, the examinations are such as virtually to bar those without proper professional education. The educators have tacitly accepted these advantages, but have shown little recognition or cooperation in return.

Recent graduates, facing registration problems, have asked me: "Why were we told nothing about registration at college?" I could give no answer. I do not know why there should be an apparent conspiracy of silence or ignorance. An educator is sadly remiss in his duty to his graduating students if he does not inform them of the established requirements for securing admission to the profession. The young graduate may be seriously handicapped if he lacks such information and guidance for the proper planning of the apprenticeship experience and the continued post-collegiate study required to round out his professional training and to qualify him for registration.

Registration Examinations

Individual educators have retarded progress in developing the examination standards for engineers' registration by saying to the Boards of Examiners: "We do not want you to re-examine our graduates!" They protest when examinations are included in subjects that are given in their curricula, and they protest again when examinations are included in subjects not covered in their curricula. It is difficult to understand why an educator should object to an impartial objective comparative test of his graduates with those of other institutions or with candidates who have not had the advantage of a college education. It is still more difficult to understand why an educator should object to examinations that test a candidate's knowledge matured and ripened by experience and supplemented by continued self-education four or more years after graduation. In the other established professions, as medicine and law, opposition by educators to extended qualifying examinations for licensure would be unthinkable. For engineers' registration, the State wants to test the candidate's knowledge and attainments at the time of professional certification, and is not satisfied to accept varying undergraduate class-room ratings antedating graduation as an equivalent substitute.

Despite the generally recognized narrowness or other defects of certain approved curricula, the Registration Boards are *not* "telling the educators what to teach." They are, however, expecting the graduates of these schools to make up for any short-comings or limitations in their education by further study after graduation. Surely the educators cannot quarrel with this principle. On the other hand, the teachers should not seek to tell the Registration Boards what examinations to give. Mutual cooperation and counsel are desired, but dictation is out of place. The Board of Examiners is entrusted with a serious responsibility by the State, and cannot delegate that responsibility to others.

Conclusion

All that has been said in the foregoing is intended as sincere constructive criticism. It is presented with all due respect for the many educators who have exemplified, in their lives and in their work, the highest qualities of self-sacrifice, vision, and leadership in genuine cooperation with the ideals and the aspirations of the engineering profession.

Reprint The Journal of Engineering Education, Sept. 7, 1940.

A Legend Concerning the Creation

Frederick H. Zurmuhlen, President of the New York Society of Professional Engineers, Inc., in his address before the convention of the Pennsylvania Society of Professional Engineers, at Hershey, Pa., gave a beautiful and impressive legend concerning the Creation.

This legend, attributed to Dr. D. B. Steinman, former President of the National Society of Professional Engineers, was so impressive and so well delivered that every Engineer should have heard it. We reprint it here.

Four men stood up with God when he made the world. They saw a nebulous mass take form under the hand of the Creator, and they watched with wonder as the shimmering sphere flung from the fingers of the Omnipotent found its place in the shining galaxy of stars. Blinded by the sublime spectacle, the men fell down in worship and God said to them, "Rise and fear not." And the four men arose and faced their Master with the new-born questions and ambitions that fired their very souls. And one of them asked, "How was it done?"—and that man went forth and became the Scientist.

"Give it to me," said the second—and God said to him, "Go and possess it for yourself"—and that man became the Business man.

"How beautiful!" exclaimed the third—and God said, "You shall go forth and because your soul burns within you, you shall create beauty." That man went forth and become the Artist.

The fourth man, true to form, said nothing; but as his eyes followed the systematic and logical unfolding of the plan of creation, there was kindled in his heart a desire to do these things. The Almighty, knowing his innermost thoughts, said to him, "You, too, shall go forth, and you shall plan and build for the comfort of others, and you shall lead them to a fuller appreciation of the things that I have created. You shall learn to master the forces which I have called forth, and you shall continue the work of creation."

That man went forth and became the Engineer.

And thus this noble group of God's noblemen, set out on their appointed tasks. The Engineer ran before the others to straighten a path for their feet; he blazed a trail through the trackless forest, and the impenetrable jungles—over the jagged mountains and across the torrential streams he cleared away barriers, broke down obstacles and spanned the chasms that halted their progress; he explored the far places on the earth and dug into the depths for the materials the others needed. He fashioned their tools for them, he devised shelters to protect them from the elemental forces of air, fire, earth and water, and then, not being satisfied, he harnessed those very forces to lighten their toil. The others leaned heavily upon the engineer particularly when the going was rough. He crystallized their vision and gave fruition to their efforts. He labored and developed for the Scientist magic ways to usefulness. He helped the business man find new wealth, and with it he created the structure of industry and commerce. He furnished new materials and tools to the Artist, and made his dream of beauty materialize in imperishable form, with the truth discovered by the scientist, the wealth governed by the business man, and the beauty dreamed of by the artist, the engineer performed ever greater tasks, rearing a resplendent structure of civilization and human progress.

Thus the engineer went on through the ages, overcoming new obstacles reshaping the physical world; unsparing of his energy, he toiled to create comfort and happiness for his fellow wayfarers. He has been the pioneer in the creation of present-day civilization. He has created most of its physical improvements—physical improvements enjoyed but taken for granted by our present-day society.

So numerous has been the engineer's contribution and so complex a structure has he woven that he must now take the leadership in the onward march of that civilization he created.

Men may fight and destroy for a time, but they must build forever. After the devastation of the World War, the engineer was the only hope of a shattered world, to reconstruct it from its physical ruin. After the devastation of the economic crash, the engineer again became the only hope of a shattered world in the work of reconstruction of the industrial machine, and the restoration of constructive endeavor.

Resolution Regarding A.I.E.E. Model Law

Adopted by National Council of State Boards of Engineering Examiners October 30, 1940

Be it RESOLVED, THAT the National Council of State Boards of Engineering Examiners disapprove of the so-called "Model Law" for the Registration of Professional Engineers and Land Surveyors as accepted by the directors of the A. I. E. E. and issued June 1, 1939, and that the Council record its earnest hope that this proposed law be not approved by other engineering bodies, and that its provisions be not written into the engineering laws of the various states.

The most significant departure from the provisions of established law is the recommendation exempting from the registration requirement all engineers who are "not for hire to the public and not in public employment". The Council does not believe that all engineers in industry should be exempt. It is the Council's considered judgment that now, after the lapse of years, when registration has become well established, when forty-two states have registration laws and when over 65,000 engineers are registered, such a drastic revision as contemplated is untimely and is neither useful, necessary nor beneficial.

The effect of the changes proposed would be to set back the progress already made, to create confusion and to throw existing laws open to revision. When started, such revision almost never is held to the original provisions and purpose. The recommended changes in exemptions and in the definition of Professional Engineering are fundamental. They tend to emasculate the law, in order to allow a small group of engineers to escape its application to them and the nuisance, to them, of registering. The Council thoroughly disagrees with the apparent intent and purpose of the so-called "Model Law".

The proposed changes would not be to the best interests either of the Engineering Profession or the Public.

The National Council of State Boards of Engineering Examiners is an advisory and cordinating agency established primarily to assist State Boards of Registration for Professional Engineers in a more efficient and uniform administration of state registration laws; and its functions and activities include the certification of engineers, jointly with State Boards, for interstate registration in the various states, and the operation of a national clearing house and information bureau for matters pertaining to the legal registration of professional engineers, serving State Boards, state committees, engineering societies, individual engineers and the public.

OKLAHOMA

The American Engineer,
National Press Building,
Washington, D. C.
Attention: Editor-in-Chief.
Gentlemen:

The tendency on the part of various government departments to recognize only law and medicine as professions is particularly unfair to the engineering profession.

In the recent revision of the regulations of the Fair Labor Standards Act made by the Wage and Hour Division of the United States Department of Labor, the Profession of Engineering was not mentioned when reference was made to the professions of law and medicine.

Speaking for the Professional Engineers of Oklahoma, we believe that if this oversight of the engineering profession is called to the attention of the proper government officials they will give just recognition to the engineering profession. Therefore, the Board of Directors of the Oklahoma Society of Professional Engineers has approved a resolution registering our protest. A copy of this resolution is attached for your information.

As directed,
W. R. WOLFE,
President.

RESOLUTIONS

WHEREAS the Wage and Hour Division of the United States Department of Labor has promulgated certain regulations pursuant to the provisions of the Fair Labor Standards Act; and

WHEREAS Section 541.3 of said regulations defines "professional employees," and

WHEREAS Subsection (B) of this section grants exemption from certain provisions thereof to those engaged in the practice of law or medicine; and

WHEREAS there are, in Oklahoma alone, approximately one thousand professional engineers engaged in professional practice by reason of holding valid certificates of registration as required by Oklahoma law and there are many thousands more such engineers in professional practice throughout the nation, each having professional status designated by virtue of the laws of the state in which he practices; and

WHEREAS recognition similar to that granted in Subsection (B), referred to, to the professions of law and medicine is not extended to the members of the engineering profession or to the members of any other learned profession; now therefore be it

RESOLVED by the Board of Directors of the Oklahoma Society of Professional Engineers, that these regulations discriminate unfairly and improperly between the members of the several learned professions which are legally recognized in the several states; and be it further

RESOLVED that this discrimination may tend to lower the engineering profession and other learned professions, not listed in these regulations, in the eyes of the public and in the eyes of employers and clients; and be it further

RESOLVED that the differentiation implied in these regulations between law and medicine on the one hand and other learned professions on the other is without justification on professional or economic grounds and is detrimental to the interests of the professions, of business, of labor and of the general public; and be it further

RESOLVED that the Oklahoma Society of Professional Engineers does hereby urge that the National Society of Professional Engineers make immediate and vigorous protest in this connection; and be it further

RESOLVED that the Oklahoma Society of Professional Engineers does assure the National Society of Professional Engineers its full support in such measures as may properly be taken to secure the elimination of this absurdity from the regulations governing the business structure of the nation; and be it further

RESOLVED that copy of this resolution be spread in the minutes of the next ensuing meeting of the Oklahoma Society of Professional Engineers and that copy thereof be furnished to the National Society of Professional Engineers, to the Wage and Hour Division of the Department of Labor, to the editor of the Oklahoma Engineer, to each senator and congressman from Oklahoma and to the press.

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Kropp, Geo. W., Kropp & Steele Surveying Co., Clayton.
Robinston, Chester G., Union Electric Co., St. Louis.
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Hill, F. Norman, St. Joseph Ry. Lt. Ht. & Pwr. Co., St. Joseph.
Bucknum, C. L., U. S. Army, Camp Shelby, Miss.
Leaphart, Frank E., MSHD, Marshall.
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Frieling, G. H., Kansas City Public Service Co., Kansas City.
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Blessing, Ray, Sewer Dept., Kansas City.
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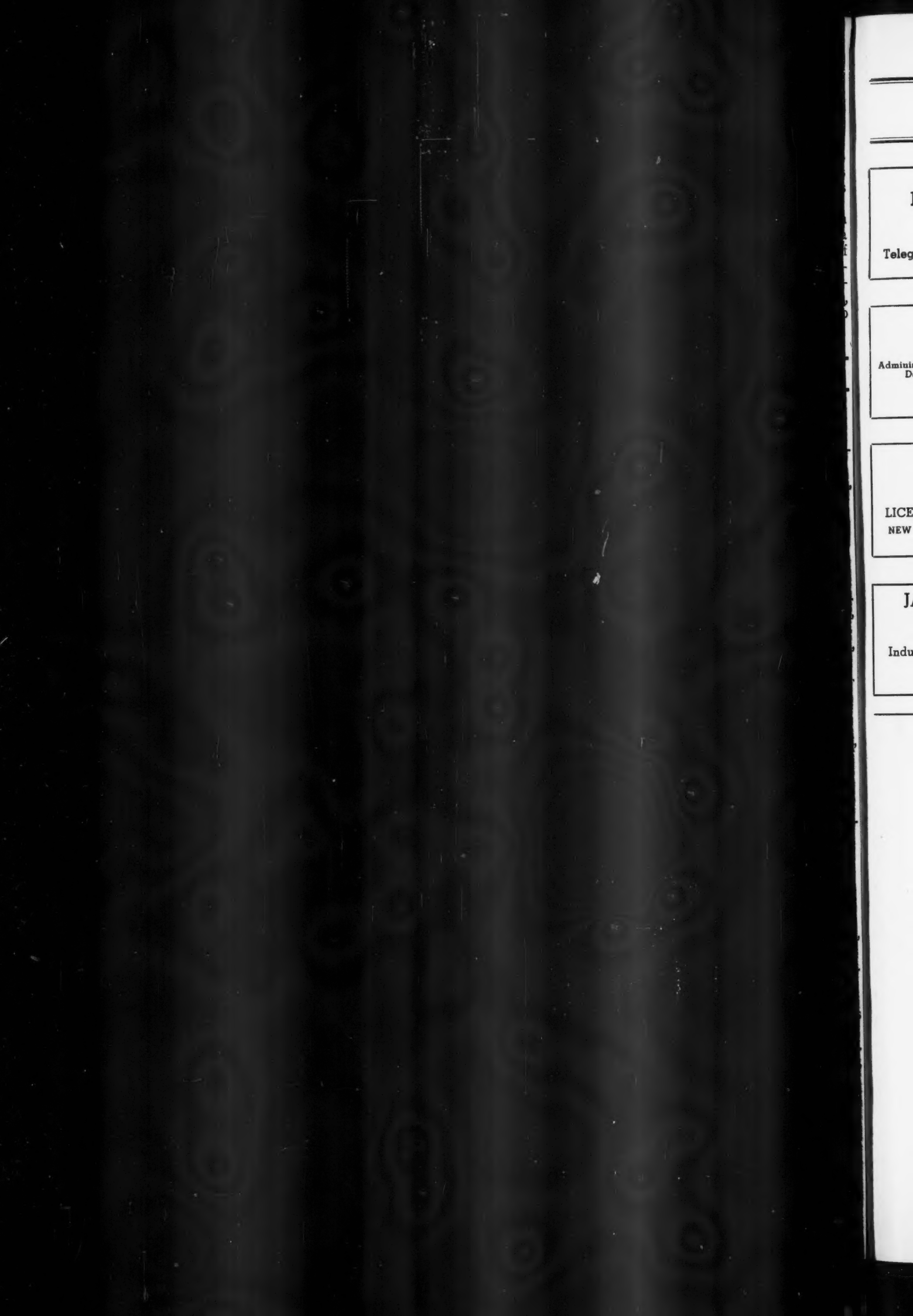

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